

**Design & Fabrication of a Cask Storage System (CSS)
for the Capsule Extended Storage Project****SECTION C: DRAFT CONTRACT**

Following is a draft of the contract contemplated as a result of this solicitation. Prospective offerors are reminded to review the draft contract to ensure they are prepared to comply. The draft contract will be updated to reflect the final agreement reached based on the proposal submitted and discussions, if any, that are held.

CH2M HILL

Plateau Remediation Company
Mail Stop H8-41
2420 Stevens Center Place
P.O. Box 1600
Richland, WA 99352

Contractor:

<< Enter Contractor Name >>

<< Enter Street Address >>

<< Enter Street Address >>

<< Enter City, State, Zip >>

Contract Specialist: Tracey Burch

Phone Number: 509-376-3466

Contractor Contact: << Enter Name >>

Phone Number: << Enter Phone Number >>

Start Date: << Click here to enter a date >>

Contract Type: Multiple

Contract Value: <<To Be Determined>>

End Date: << Click here to enter a date >>

FOB Point: << Enter FOB Point >>

Payment Terms: << Enter Payment Terms >>

CH2M HILL Plateau Remediation Company_____
Contractor Authorized Signature_____
Printed Name/Title_____
Printed Name/Title_____
Date Signed Phone_____
Date Signed Phone

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Terms

ALARA	as low as reasonably achievable
ASME	American Society of Mechanical Engineers
ASNT	American Society of Nondestructive Testing
ASTM	ASTM International, formerly American Society for Testing and Materials
AWS	American Welding Society
BTR	Buyer's Technical Representative
BWD	Blanket Wage Determination
CDR	conceptual design report
CDSF	Contractor Document Submittal Form
CESP	Capsule Extended Storage Project
CGD	commercial grade dedication
CGET	CHPRC General Employee Training
CHPRC	CH2M HILL Plateau Remediation Company
CMTR	certified material test report
CoC	Certificate of Compliance or Conformance
COTS	commercial-off-the-shelf
CSA	Capsule Storage Area
CSS	cask storage system
DCN	design change notice
DOE	U.S. Department of Energy
DOE-RL	DOE-Richland Operations Office
DMCS	Document Management and Control System
EFT	Electronic Funds Transfer
ESH&Q	Environmental, Safety, Health, and Quality
ESL	evaluated supplier list
FAR	Federal Acquisition Regulation
FAT	factory acceptance test
FDC	functional design criteria
FDR	final design report
FTR	Federal Travel Regulations
GFE	government (or Buyer) furnished equipment
GOTS	government-off-the shelf
M&IE	Meals and Incidental expenses
NCR	nonconformance report
NDE	nondestructive examination
NIST	National Institute of Standards and Technology
NQA-1	ASME NQA-1-2008, <i>Quality Assurance Requirements for Nuclear Facility Applications</i> , with ASME NQA-1a-2009, addenda
NRTL	nationally recognized testing laboratory
OSHA	Occupational Safety and Health Administration
PDR	preliminary design report
PE	Professional Engineer

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QA	quality assurance
QAP	quality assurance plan
QL	quality level
RCI	request for clarification or information
RCRA	<i>Resource Conservation and Recovery Act of 1976</i>
SCA	Service Contract Act
SDD	system design description
SEL	safety equipment list
SOW	statement of work
SSC	structure, system, or component
WAC	Washington Administrative Code
WESF	Waste Encapsulation and Storage Facility

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PART I – STATEMENT OF WORK

Revision 0

February 25, 2016

Prepared by: Roger L. McCormack

1.0 INTRODUCTION/BACKGROUND

The Waste Encapsulation and Storage Facility (WESF) is located on the Central Plateau of the U.S. Department of Energy (DOE) Hanford Site. WESF's current mission is the safe and compliant storage of cesium and strontium capsules. CH2M HILL Plateau Remediation Company (CHPRC) is a prime contractor to DOE and is responsible for management of WESF and the capsules as identified in DE-AC06-08RL14788, *CH2M HILL Plateau Remediation Company Plateau Remediation Contract*.

CHPRC has initiated the Capsule Extended Storage Project (CESP) (W-135) to transfer the cesium and strontium capsules currently being stored under water at WESF to a new storage facility where the capsules will be safely and compliantly stored in dry conditions for an extended period within a cask storage system (CSS). To achieve capsule extended storage, the CESP includes the following general scope of work:

- Acquire storage and transfer systems and associated equipment necessary to support retrieval, packaging, and transfer of the capsules to extended storage.
- Construct a new Capsule Storage Area (CSA), including storage pad, fencing, lighting, and road access.
- Complete WESF modifications needed to support capsule retrieval, packaging, and transfer to the CSA for extended storage.
- Perform capsule transfer operations, including retrieval from existing storage, packaging, and transfer to the CSA, and placement into the extended storage configuration.
- Prepare and implement regulatory documents and perform operational preparations necessary for capsule removal from WESF and implementation of extended storage.
- Disposition the capsule transportation system.

CHPRC has issued CHPRC-02252, *Capsule Extended Storage Project (W-135) Functions and Requirements Document*, to establish the upper level functions and requirements for the CESP work scope. Separate lower level detailed functional design criteria documents have been prepared for each anticipated design contract within the CESP.

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CHPRC will manage the CESP following the requirements of DOE O 413.3B, *Program and Project Management for the Acquisition of Capital Assets*, and DOE-STD-1189, *Integration of Safety Into the Design Process*. The strategy for implementing the requirements of DOE-STD-1189 is described in CHPRC-02236, *Extended Capsule Storage Project Safety Design Strategy*. CHPRC will award various contracts to support completion of the necessary scope of work for the CESP, including the following:

- Design/fabrication of a CSS
- Design of WESF modifications and CSA
- Construction of WESF modifications and CSA
- Operations support

This statement of work (SOW) is for the design/fabrication of a CSS, which includes the following:

- Performance of design and offsite fabrication services for the CSS, the associated cask transfer system, and ancillary equipment for both the storage system and the transfer system
- Technical support services to CHPRC during assembly and testing of CSS systems at the Hanford Site, commissioning and startup, and canister and cask loading, closure, and transfer operations

This SOW does not include any work scope associated with the following Capsule Extended Storage Project scope of work, except where specifically identified within this SOW: design of WESF modifications and CSA; construction of WESF modifications and CSA; and operations support.

All work on this SOW will be performed in support of the CHPRC contract with DOE.

2.0 DESCRIPTION OF WORK – GENERAL

WESF was designed and constructed to encapsulate and store cesium and strontium separated from wastes generated during the chemical processing of defense fuel at the Hanford Site. Presently, 1,936 capsules are stored in the WESF pool cells. As of August 2015, the capsules contained 94 million Ci of radioactivity, including daughter products (approximately 48 million Ci of cesium and strontium). The capsules represent a substantial fraction of the radioactivity associated with the total radionuclide inventory at the Hanford Site. The capsules are managed as mixed high-level waste under the *Resource Conservation and Recovery Act of 1976 (RCRA)*.

Because of the capsule contents and characteristics, it is important to maintain reliability of barriers to the environment for the duration of the extended storage period until a disposal path is available for the capsules. The CSS will employ a commercially available spent nuclear fuel dry storage system adapted as required to provide safe and compliant storage of the capsules during the extended storage period.

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The Contractor shall perform the following:

- Design, fabrication, inspection, testing, and delivery of a CSS for extended storage of the WESF capsules
- Design, fabrication, inspection, testing, and delivery of a transfer system to transfer capsules from WESF to the CSA for extended storage within the CSS
- Design, fabrication, inspection, testing, and delivery of ancillary equipment required during cask loading, closure, and transfer operations or for maintenance of the CSS and/or cask transfer system
- Technical support services during CHPRC preparations for and execution of CSS systems assembly and testing at the Hanford Site, commissioning and startup, and canister and cask loading, closure, and transfer operations

The Contractor shall provide and manage the labor, equipment, material, and services required to complete the tasks and deliverables identified herein. The design, fabrication, and factory acceptance testing work scope shall be performed at the Contractor's facilities. For onsite access, including product deliveries and technical support services performed at the Hanford Site, site visitation will be coordinated through the Contract Specialist.

The Contractor is responsible for execution of the work in accordance with the quality standards and requirements specified herein.

The DOE is also considering an alternate capsule packaging requirement which is intended to better facilitate the potential for the eventual disposal of the capsules in a deep borehole. The alternate packaging requirement involves the placement of the capsules into a universal canister prior to their placement in the storage canister. Details of the alternate packaging requirement are provided in Appendix A to this SOW.

3.0 DESCRIPTION OF WORK – SPECIFIC

The Contractor shall complete the following tasks to provide the required deliverables and services:

- Design Tasks
 - Task 1 – Conceptual Design
 - Task 2 – Preliminary Design
 - Task 3 – Final Design
- Fabrication, Inspection, Testing, and Delivery Tasks
 - Task 4 – Fabrication, Inspection, Testing, Delivery of CSS
 - Task 5 – Fabrication, Inspection, Testing, Delivery of Transfer System

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- Task 6 – Fabrication, Inspection, Testing, Delivery of Ancillary Equipment
- Task 7 – Mock-up/Integrated Testing
- Technical Support Services Tasks
 - Task 8 – Technical Support Services

The Contractor-provided systems shall satisfy the requirements identified in CHPRC-02622, *Cask Storage System (CSS) Functional Design Criteria (Project W-135)*.

3.1 Detailed Work Plan

The Contractor shall prepare a detailed work plan that describes the means by which the Contractor will perform each task. The task objectives, approach, activities, deliverables, overall schedule, and resources required to accomplish each specified task shall be presented in the detailed work plan. The estimated number and type of drawings, specifications, calculations, analyses, procedures, reports, and other materials for each task shall be provided.

The detailed work plan shall include but not be limited to the following:

- Description of functional capabilities and equipment to be designed and fabricated.
- Description of work to be performed. This description will identify activities to be performed and a list of specific documents and types of design drawings/diagrams/schedules/test documents to be produced.
- List and schedule for all intermediate deliverables, including planned interim review packages.
- List and description of all key inputs and outside data needs that must be provided by CHPRC for specific activities.
- List and description of any associated constraints or assumptions for specific activities.
- Description of the implementation of the Contractor's quality assurance plan (QAP) as specified by this SOW.
- Indication of how design interfaces shall be identified and controlled. The project work plan shall describe the method for interface control and identify the participating organizations. Interfaces that are required for WESF operations and equipment, interfaces with organizations that are not under contract with the CSS contractor, and interfaces which are driven by and/or in support of (potential) CoC amendments will be specifically identified and the potential impact(s) and risk associated with each will be identified.
- Identification of the Contractor's plan for performing procurement, including identification of long-lead procurements.

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- Identification of the Contractor's plan for fabrication, inspection, and testing of system hardware. The project work plan shall provide the sequence of fabrication and how the fabrication will be accomplished (e.g., Contractor's facilities or subcontractor) and will specifically identify any critical witness and hold points.
- Identification of the Contractor's plan for mock-up and integrated testing of components, including how the mock-up/integrated testing will be accomplished (e.g., Contractor's facilities or subcontractor).
- A detailed work schedule that shows the sequence and duration of planned activities, constraints, and interdependence for all activities and milestones. This schedule shall be developed in sufficient detail to plan and control the required work activities. The schedule shall meet the following criteria:
 - Be a time-phased, logic-based, critical path network schedule of all activities.
 - Indicate lower-level schedules as necessary to identify all deliverables.
 - Indicate project milestones.
- Description of the design change control process to be used during fabrication and testing.
- Identification of records management.

The detailed schedule shall be developed consistent with the following Work Breakdown Structure:

- 013.02.04.07 Conceptual Design for CSS, Transfer System, and Ancillary Equipment
 - 013.02.04.07.01 30% Conceptual Design Preparation
 - 013.02.04.07.02 90% Conceptual Design Preparation
 - 013.02.04.07.03 Conceptual Design Review/Finalize Conceptual Design
 - 013.02.04.07.04 Other Conceptual Design Phase Submittals
 - 013.02.04.07.05 Project Management for Conceptual Design
- 013.02.04.08 Detailed Design for CSS, Transfer System, and Ancillary Equipment
 - 013.02.04.08.01 Preliminary Design (60% of Detailed Design)
 - 013.02.04.08.02 Final Design for Review (90% of Detailed Design)
 - 013.02.04.08.03 Final Design Review/Final Design Report
 - 013.02.04.08.04 Other Detailed Design Phase Submittals
 - 013.02.04.08.05 Project Management for Detailed Design
- 013.02.04.09 Storage System Fabrication/Delivery
 - 013.02.04.09.01 Long-Lead Materials Procurement for Storage System

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- 013.02.04.09.02 Pre-Fabrication Preparations for Storage System
- 013.02.04.09.03 Pre-Fabrication Submittals for Storage System
- 013.02.04.09.04 Storage System First Article Fab/Inspection/Factory Acceptance Testing
- 013.02.04.09.05 Remaining Storage Systems Fab/Inspection/Factory Acceptance Testing
- 013.02.04.09.06 Pre-Delivery Submittals/Vendor Information for Storage System
- 013.02.04.09.07 Storage Systems Delivery
- 013.02.04.09.08 Project Management for Storage System Fabrication
- 013.02.04.10 Transfer System Fabrication/Delivery
 - 013.02.04.10.01 Long-Lead Materials Procurement for Transfer System
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 - 013.02.04.10.07 Project Management for Transfer System Fabrication
- 013.02.04.11 Ancillary Equipment Fabrication/Delivery
 - 013.02.04.11.01 Long-Lead Materials Procurement for Ancillary Equipment
 - 013.02.04.11.02 Pre-Fabrication Preparations for Ancillary Equipment
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 - 013.02.04.11.04 Ancillary Equipment Fab/Inspection/Factory Acceptance Testing
 - 013.02.04.11.05 Pre-Delivery Submittals/Vendor Information
 - 013.02.04.11.06 Ancillary Equipment Delivery
 - 013.02.04.11.07 Project Management for Ancillary Equipment Fabrication
- 013.02.04.12 Mock-up/Integrated Testing
 - 013.02.04.12.01 Test Location/Mock-up Preparations
 - 013.02.04.12.02 Integrated Test
 - 013.02.04.13.03 Integrated Test Report
 - 013.02.04.13.04 Project Management for Integrated Testing
- 013.02.04.13 CSS Technical Support Services

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013.02.04.13.01 Technical Support during Startup/Readiness

013.02.04.13.02 Technical Support during Capsule Transfer Operations

The detailed work plan shall include schedule detail within each applicable WBS element for manufacture and/or procurement of significant components of the storage system, transfer system, and ancillary equipment, including, as a minimum, canister and shielded overpack fabrication, inspection, and testing.

To incorporate DOE O 413.3B requirements, the detailed work plan shall include hold points that require CHPRC authorization prior to proceeding with the following activities:

- Task 2, Preliminary Design
- Tasks 4, 5, and 6 Long-lead material procurements
- Tasks 4, 5, and 6 Fabrication

CHPRC will not authorize Tasks 4, 5, and 6 to proceed until after approval of the Final Design Report by CHPRC. The work plan will assume funding availability as follows: Task 1 in Fiscal Year 2017; Tasks 2 and 3 in Fiscal Year 2018; Tasks 4, 5, 6, and 7 in Fiscal Years 2019 and 2020; and Task 8 in Fiscal Years 2021 and 2022.

The detailed work plan shall be submitted for CHPRC review and approval. The Contractor shall maintain and update the approved work plan as required. The detailed work plan shall be maintained as a controlled document by the Contractor.

The detailed work plan cost estimate and schedule shall clearly delineate work that will be performed under each task.

3.2 Design Tasks

The contractor shall provide conceptual, preliminary, and final design for the following major system components of the CESP:

- CSS, which will provide compliant storage of the capsules for the required extended storage period using commercially available spent nuclear fuel dry storage technologies (i.e., canisters within shielded casks or storage modules). This includes all internals (e.g., baskets) within the CSS. This also includes the temperature monitoring system installed within the CSS and specification of related readout devices/transmitters.
- Transfer system that will enable transfer of the packaged capsules from WESF to the CSA and placement into extended storage. The configuration of the transfer system will depend on the selected capsule storage system technology.
- Ancillary equipment required to support retrieval, packaging, transfer, and extended storage operations. Specific equipment will depend on the commercially available spent nuclear fuel

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dry storage technology selected. At a minimum, this will include a closure welding system, helium backfill and leak-testing equipment for CSS closures, capsule transfer equipment, canister loading and trans-loading (if applicable) equipment, special lift devices, and storage system handling tools.

At each phase of design, the Contractor shall also identify requirements that must be addressed by CHPRC in design of the other major system components of the CESP for successful operations using the Contractor-provided systems. Specifically, the Contractor shall provide interface requirements applicable to the following during each phase of design:

- The CSA, which will include the storage pad required for compliant storage of the capsules within the capsule storage systems and associated fencing, lighting, and road access. The area will include a graded, compacted, graveled area around the pad sufficient for capsule receipt operations and surveillance and maintenance. The fencing will be used to limit radiological exposure from the capsule storage to nonradiological workers and will provide required physical security.
- WESF modifications required to support capsule retrieval, packaging, and transfer from WESF. Specific modifications will depend on the commercially available spent nuclear fuel dry storage technology selected. This could include modifications in the WESF truck port, canyon, G Cell, and/or pool cell area to support packaging, storage, and/or transfer system interfaces with the facility.
- Improvements or modifications to Hanford Site infrastructure, such as roadways between WESF and the CSA.

The Contractor is the fully responsible design agent, accountable for translating design requirements into a practical, safe, and cost-effective design that meets all requirements identified in CHPRC-02622. Any services such as electricity, air, water, and other utilities required by the Contractor's design shall be clearly identified by the Contractor. CHPRC will retain responsibility as the design authority and shall review and approve all design documents.

In addition to requirements identified in CHPRC-02622, the Contractor must meet the following requirements for all design phases, as applicable:

- The Contractor shall have procedures for controlling the configuration of the design during the design, fabrication, and construction phases of the project, in accordance with the Contractor's approved QAP. The procedures must ensure that changes to the design are reviewed and approved consistent with the requirements for the initial design, including approval by CHPRC.
- Analyses used to support the design of the various system components shall be provided and shall be updated as design progresses. Analyses may be presented in separate documents, or related analyses may be combined into the same document. The Contractor is responsible for determining the required analyses; at a minimum, the following analyses shall be provided:

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- **Structural analysis** – The Contractor shall provide a structural analysis of the CSS structures, systems, and components (SSCs) utilized during transfer operations from WESF to the CSA and while in place at the CSA in accordance with Hanford Site standards defined in CHPRC-02622. A stress analysis for normal and seismic conditions shall be provided.

The Contractor will also provide the applicable structural analysis supporting their existing Certificate of Compliance or Conformance (CoC) with particular regard to “in facility” systems and the “post-Fukushima BDBA” as input to CHPRC in support of structural analysis for system utilization at WESF.

- **Shielding analysis** – The Contractor shall perform a shielding analysis for the storage system components to ensure dose rates are as low as reasonably achievable (ALARA) and less than limits specified in CHPRC-02622.
- **ALARA analysis** – The Contractor shall perform an ALARA analysis to include a “time-motion” study that addresses lifecycle dose, including loading the capsules into the storage casks, normal operations, maintenance activities, and ultimately loading the capsules into shipping containers. An ALARA analysis including cost-benefit analysis relative to the dose received should be performed during the design process to demonstrate that the design is ALARA. For cost-benefit analysis, the monetary value of 1 rem of collective dose shall be \$10,000. All Contractor actions and decisions taken to maintain exposures ALARA shall be documented.
- **Thermal analysis** – The Contractor shall perform a thermal analysis considering decay heat to ensure capsule temperatures are maintained in accordance with CHPRC-02622. This analysis should also address the potential risk of thermal cycling during packaging, transfer, and storage, especially to capsules that may have previously experienced thermal cycling.
- **Human factors analysis** – The Contractor shall perform and document a human factors evaluation on the completed design.
- **Accident analysis** – The Contractor shall perform an accident analysis to support the development of safety basis and transportation safety documentation, including loaded canister and cask drop analysis.

Design life and retrievability of the capsules are important factors that must be considered in the development of all analyses.

- Calculations and analyses shall be checked and approved by qualified personnel independent of the preparer.
- Computer software used for calculation and analysis shall be verified and validated in accordance with the Contractor’s approved QAP and the following:

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- Software verification shall provide evidence that the software, and its associated products, satisfies program system requirements, solves the right problem (e.g., correctly models physical laws, implements business rules, and uses the proper system assumptions), and satisfies the intended use (IEEE 1012-2012, *IEEE Standard for Software Verification and Validation*).
- Software validation shall provide objective evidence that the software, and its associated products, conforms to requirements (e.g., for correctness, completeness, consistency, and accuracy) (IEEE 1012-2012).
- Each calculation or analysis that uses software shall list the revision of software used and shall include documentation of the software verification and validation.
- CHPRC and DOE shall have access to and have ability to read and follow any proprietary software used by the Contractor.
- In addition to appropriate verification and validation of software, any software models developed shall be appropriately documented and tested. This documentation shall include the following:
 - Definition of the objective (intended use) of the model.
 - Description of conceptual model and scientific basis, as well as alternatives for the selected conceptual model. The rationale for not selecting alternatives shall also be included.
 - Results of literature searches and other applicable background information.
 - Identification of inputs and their sources.
 - Identification of, and rationale for, assumptions that are made to develop or apply the model, including model idealizations, as well as those assumptions that support the input to the model and impact model results.
 - Discussion of mathematical and numerical methods that are used in the model, including governing equations, formulas, and algorithms, and their scientific and mathematical bases.
 - Identification of any associated software used, computer calculations performed, and basis to permit traceability of inputs and outputs.
 - Discussion of initial and/or boundary conditions.
 - Discussion of model limitations (i.e., data available for model development, valid ranges of model application, and spatial and temporal scaling).

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- Discussion of model uncertainties (e.g., conceptual model, mathematical model, process model, abstraction model, system model, and parameters) and how they affect the model.
- Identification of the originator, reviewer, and approver.
- Computer software used to develop or execute the model.
- The intended use of the model and the importance of the model used to determine the appropriate level of confidence for a model (i.e., models of system components most relied upon are validated with the highest levels of confidence to the extent practical).
- Model testing documentation shall include the following:
 - The criteria used to establish the adequacy of the scientific basis for the model consistent with the model application and justified in the model documentation.
 - The criteria used to demonstrate that the model is sufficiently accurate for its intended use. This documentation shall provide an accounting for uncertainties and variabilities in parameter values and shall provide the technical basis for parameter ranges, probability distributions, or bounding values used in process, abstraction, and system models.
 - Description of the relative level of confidence for the model.
 - List of any supporting information needed to substantiate model validation.
- If the design includes control software for physical plant systems, the design development, verification, and testing of the control system software shall be performed according to the requirements of PRC-PRO-EN-40357, *Engineering Software Management*. This requirement does not apply to integrated software in which the source code is not alterable by the user (firmware).
- The Contractor shall prepare all engineering drawings necessary for fabrication, assembly, integrated testing, and handling. Drawings must be developed in accordance with PRC-STD-EN-40279, *Engineering Drawing Standards*, unless alternative requirements are approved by CHPRC. All design media and calculations shall include a Washington State Professional Engineer (PE) stamp.
- The Contractor shall develop specifications, equipment lists, tooling lists, and instrumentation lists. The equipment list shall identify the safety classification and any safety function of the equipment. The equipment list shall also identify the manufacturer, model number, and performance information. The instrument list shall identify the manufacturer, model number, operating range, and set point (if applicable).
- Specifications shall be developed according to the requirements of PRC-STD-EN-40280, *Engineering Specifications*, unless alternative requirements are approved by CHPRC.

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- The Contractor shall develop a critical characteristic list for components and systems. The purpose of the list is to identify the characteristics that are critical to meeting the performance requirements for the component or system. This list shall be used to determine the required submittals and inspections and tests required to verify each critical characteristic. For components with an identified safety function (credited in a safety basis document), this list will be used to develop commercial grade dedication (CGD) plans and safety equipment lists (SELS).
- All design documents (including drawings, specifications, and analyses) shall be updated based on results of physical walk-downs, test results, and incorporation of design changes. As-built documentation shall be provided prior to acceptance.
- The Contractor shall perform design verification of all design documents in accordance with the Contractor's approved QAP. All design verifications shall be documented. Verification documentation shall be maintained as-built during construction. The design shall be accepted by the performance of formal design reviews of the conceptual, preliminary, and final design to verify compliance with the requirements of CHPRC-02622.
- The Contractor shall provide data as needed to support a CHPRC throughput analysis to demonstrate that production rate requirements can be met with the Contractor's design and the fabrication and delivery schedule. Assumptions for this analysis must be consistent with CHPRC-02622.
- The Contractor shall ensure conservative values are used for capsule characteristics and dimensions, unless otherwise approved by CHPRC. Minor differences in capsule dimensions are identified in the various referenced historical documents and CHPRC-02622. Design shall identify any critical outer capsule dimensional verifications that must be performed prior to canister loading to verify design assumptions.
- CHPRC shall provide a compliance matrix to be used to demonstrate that all identified requirements are addressed in the design. The Contractor shall complete the compliance matrix at the conceptual, preliminary, and final design phases to be used during the formal design reviews. The matrix shall identify the specific point of compliance in the design media.

3.2.1 Task 1 – Conceptual Design

The Contractor shall prepare a conceptual design for the CSS, transfer system, and ancillary equipment. The conceptual design analysis shall be sufficient to demonstrate viability of the selected concept.

- The conceptual design shall be documented in a conceptual design report (CDR) that is developed using PRC-STD-EN-40261, *Conceptual Design Report*, as a guide for report content.

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- The CDR shall include the following elements, completed to the level commensurate with the design phase: completed compliance matrix; engineering drawings; calculations; analyses; specifications; equipment lists, tooling lists, and instrumentation lists; critical characteristic list for components, equipment, and systems; Code of Record, and utility needs and interfaces.
- The CDR shall include all calculations, technical bases, and analyses used to develop the design products.
- The CDR shall include a thermal analysis that demonstrates the design ensures capsule temperatures are maintained in accordance with CHPRC-02622. In particular any new, modified, tailored, customized, and/or otherwise adapted components that may affect the current CoC shall be addressed in the analysis.
- The CDR shall provide sufficient detail for CHPRC to prepare a preliminary hazards analysis, a preliminary fire hazards analysis, and a conceptual safety design report.
- The CDR shall include identification of any existing, new, modified, tailored, customized, or otherwise adapted components which cause the current CoC to require amendment and/or a formal amendment review and approval process, and shall include a plan identifying the requirements for and the development, submittal, and approval of the CoC and associated activities.
- The CDR shall include documentation of Contractor design verification, unless an exception is approved by CHPRC.
- The CDR shall include identification of long-lead items that will require the development of a detailed procurement specification during Task 2.
- The CDR shall include a preliminary fabrication and testing plan to identify requirements associated with the performance of these activities.
- The CDR shall identify interface requirements for CSA and WESF modifications and other existing Hanford Site systems. At a minimum, criteria will be provided for the following:
 - CSA pad requirements for CSS receipt, operations, and maintenance (e.g., minimum pad dimensions, loads, soil compaction, and tie-down)
 - CSA requirements required for laydown areas, transfer system access, emplacement operations (trans-loading, if applicable), and maintenance of the CSS
 - Minimum roadway capabilities to support CSS receipts and operations (e.g., maximum loads, dimensions, grades, curves, and overhead elevations)
 - WESF modifications to support capsule transfers (e.g., capsule inventory control and cameras), packaging, closure welding, inerting, and CSS handling (e.g., cooling systems,

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air, electricity, ventilation, space requirements, floor loading, lifting devices, and structural modifications)

- CHPRC shall perform a formal design review of the conceptual design when it is 90 percent complete according to the requirements of PRC-PRO-EN-8336, *Design Verification*, and PRC-PRO-EN-40264, *Formal Design Review*. Participants in the design review shall be identified by CHPRC and may include the DOE Richland Operations Office (DOE-RL) or other oversight agencies. The design review meeting shall be conducted at the Hanford Site.

CHPRC may perform informal “over-the-shoulder” design reviews of the conceptual design whenever there are any particular concerns or difficult technical issues to be resolved as identified by the Contractor and CHPRC. These “over-the-shoulder” reviews shall be mutually agreed to and shall be conducted at the Contractor’s facilities or the Hanford Site as may be appropriate and agreed to.

- The contractor shall prepare and present a formal design review presentation. This presentation shall include an overview of the design and the contents of the CDR.
- A final CDR shall be submitted to CHPRC after resolution of all comments from the design review meeting for final approval.

The Contractor shall prepare a system design description (SDD) for the CSS, transfer system, and ancillary equipment. The SDD shall describe the system configuration, arrangement, components, interfaces, performance characteristics, operations, maintenance, and safety and shielding provisions. The SDD shall be developed following the guidance in DOE-STD-3024, *Content of System Design Descriptions*. The development of the SDD’s are an iterative process that begins with the conceptual design and are updated with additional details as the design evolves through preliminary design and final design.

3.2.2 Task 2 – Preliminary Design

The contractor shall prepare a preliminary design for the CSS, transfer system, and ancillary equipment. The preliminary design shall be considered to be at the 60 percent completion point of the detailed design. The deliverables shall be to the degree of development that is appropriate and consistent with the detailed design being at the 60 percent point of completion.

The preliminary design shall be documented in a preliminary design report (PDR) that is developed using PRC-STD-EN-40258, *Preliminary/Final Design Report*, as a guide for report content.

- The PDR shall include the following elements, completed to the level commensurate with the design phase:
 - Completed compliance matrix
 - Engineering drawings
 - Calculations
 - Analyses

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- Specifications, including procurement specifications needed at this phase to support long-lead procurements; equipment lists, tooling lists, and instrumentation lists
- Critical characteristic list for components, equipment, and systems
- Utility needs and interfaces
- The PDR shall include all calculations, technical bases, and analyses used to develop the design products.
- The PDR shall include documentation of Contractor design verification.
- The PDR shall include an updated fabrication/inspection/testing plan to identify requirements associated with the performance of these activities.
- The PDR shall update interface requirements for CSA and WESF modifications and other existing Hanford Site systems identified in the CDR.
- CHPRC shall perform a formal design review of the preliminary design according to the requirements of PRC-PRO-EN-8336 and PRC-PRO-EN-40264. Preliminary design is considered to be approximately 60% of final design, and must include the elements identified in this section of the SOW. Participants in the design review shall be identified by CHPRC and may include DOE-RL or other oversight agencies. The design review meeting shall be conducted at the Hanford Site.

CHPRC may perform informal “over-the-shoulder” design reviews of the preliminary design whenever there are any particular concerns or difficult technical issues to be resolved as identified by the Contractor and CHPRC. These “over-the-shoulder” reviews shall be mutually agreed to and shall be conducted at the Contractor’s facilities or the Hanford Site as may be appropriated and agreed to.

- The contractor shall prepare and present a formal design review presentation. This presentation shall include an overview of the design and the contents of the PDR.
- A final PDR shall be submitted to CHPRC after resolution of all comments from the design review meeting for final approval.
- The PDR shall provide sufficient detail for CHPRC to prepare a preliminary SEL and preliminary safety functions document (including identification of equipment safety function and critical characteristics) in conjunction with the preliminary safety design report to support long-lead procurement. This preliminary safety functions document will assist in the determination of which components must be procured from an evaluated supplier or through CGD. The SEL will be prepared by CHPRC according to the requirements of PRC-PRO-EN-20050, *Engineering Configuration Management*.
- The SDD’s shall be updated to reflect the preliminary design.

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The Contractor shall prepare a final design for the CSS, transfer system, and ancillary equipment. The final design will include final drawings, technical analyses, and procurement/fabrication specifications.

- The final design shall be documented in a final design report (FDR) that is developed using PRC-STD-EN-40258 as a guide for report content.
- The FDR shall include the following elements, completed to the level commensurate with the design phase:
 - Completed compliance matrix
 - Engineering drawings
 - Calculations
 - Analyses
 - Specifications
 - Equipment lists, tooling lists, and instrumentation lists
 - Critical characteristic list for components, equipment, and systems
 - Utility needs and interfaces
- The FDR shall include all calculations, technical bases, and analyses used to develop the design products.
- The FDR shall include documentation of Contractor design verification.
- The FDR shall update interface requirements for CSA and WESF modifications and other existing Hanford Site systems identified in the FDR.
- The FDR shall include final fabrication, inspection, and test plans to identify requirements associated with the performance of these activities.
- The Contractor shall develop a design report(s) for the CSS and transfer system that will be used to support the development of safety basis documents for WESF and the CSA and for development of transportation safety documents. The design report document(s) shall include a detailed description of the design of the CSS, transfer system, and ancillary equipment components and analyses that demonstrate their acceptability for storage and transfer of the capsules.
- CHPRC shall perform a formal design review of the final design when it is 90 percent complete according to the requirements of PRC-PRO-EN-8336 and PRC-PRO-EN-40264. Participants in the design review shall be identified by CHPRC and may include DOE-RL or other oversight agencies. The design review meeting shall be conducted at the Hanford Site.

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CHPRC may perform informal/'over-the-shoulder' design reviews of the final design whenever there are any particular concerns or difficult technical issues to be resolved as identified by the Contractor and CHPRC. These 'over-the-shoulder' reviews shall be mutually agreed to and shall be conducted at the Contractor's facilities or the Hanford Site as may be appropriated and agreed to.

- The Contractor shall prepare and present a formal design review presentation. This presentation shall include an overview of the design and the contents of the FDR.
- A final FDR shall be submitted to CHPRC after resolution of all comments from the design review meeting for final approval.
- The FDR shall have sufficient detail for CHPRC to prepare a final SEL and safety functions document in conjunction with the documented safety analysis.
- The SDD's shall be updated to reflect the final design.

3.3 Fabrication, Inspection, Testing, and Delivery Tasks

The Contractor shall adhere to the following requirements for all fabrication, inspection, testing, and delivery tasks (Tasks 4-7):

- Components may be procured from manufacturers or fabricated by the Contractor or a subcontractor to the Contractor. The Contractor is responsible for ensuring that all components meet the design and quality assurance (QA) requirements.
- The Contractor shall be responsible for the procurement and/or fabrication of all components required to complete Tasks 4 to 6. The Contractor shall provide all material and equipment necessary to connect components.
- The Contractor shall provide access to offsite fabrication facilities to CHPRC for the purposes of inspection and periodic oversight of activities.
- The Contractor shall provide all instrumentation and controls necessary to monitor and control the system.
- Instruments shall be calibrated to standards traceable to the National Institute of Standards and Technology (NIST) and supplied with a calibration certificate.
- A fabrication traveler shall be developed by the Contractor and approved by CHPRC prior to the fabrication of storage system components. The traveler shall document all major elements of the fabrication process and shall be used for each component produced.
- The Contractor shall provide a complete data package for each CSS, transfer system, and ancillary equipment component that satisfies the requirements identified in Section 7.2.1.
- All welding shall be performed to a welding program qualified to the appropriate code requirements and in accordance with the process development/qualification requirements.

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Weld records and inspection reports shall be included in the data package for each component fabricated.

- Reports of inspections or nondestructive examination (NDE) performed by the Contractor or its subtier subcontractors shall be provided to CHPRC as part of each completed data package. Inspections shall be planned and documented in accordance with the Contractor's approved QA program and reviewed and accepted by CHPRC.
- Resolution of any nonconformance reports (NCRs) developed during fabrication shall be approved by CHPRC prior to implementation.
- A packaging and shipping plan shall be developed and approved by CHPRC prior to shipping any storage system components. The plan shall include provision for first article inspection documentation.
- A factory acceptance test (FAT) shall be performed for CSS, transfer system, and ancillary equipment components. The FAT shall include fit-up verification to ensure that all components will work together. FAT procedures shall be reviewed and approved by CHPRC prior to testing.
- The Contractor shall be responsible for storage/warehousing of fabricated components. A storage plan shall be submitted and approved by CHPRC if onsite storage is needed.
- The Contractor shall provide operation and maintenance manuals for all supplied equipment. The manuals shall provide detailed instructions for operation of the equipment, including precautions and limitations, and operating steps for all modes of operation. The manuals shall provide instructions for performing corrective maintenance including special tools if required and troubleshooting methods. The manuals shall provide recommended preventive maintenance including the suggested frequency of performance.
- The Contractor shall provide a list of recommended spare parts for all equipment supplied. The list shall identify the original manufacturer's part number, ordering information, and the recommended quantity to stock. The Contractor shall supply an initial set of spare parts according to the recommended spare parts list.

3.3.1 Task 4 – Fabrication/Inspection/Testing/Delivery of CSS

The following components, at a minimum, shall be fabricated (or procured), inspected, factory acceptance tested, and delivered to the Hanford Site under Task 4, consistent with definitions and requirements identified in CHPRC-02622:

- Canister, including all internals and baskets
- Storage overpack
- Temperature monitoring system

The number of units shall be sufficient to store all WESF capsules at the CSA consistent with the requirements identified in CHPRC-02622.

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The temperature monitoring system wiring and conduit external to the CSS will be provided and installed by others. The external readout/transmitter for the temperature monitoring system will be provided by the Contractor and installed by others at the CSA.

These components shall be fabricated (or procured) per the CHPRC-approved final design developed under Task 3. Delivery to the Hanford Site will not occur until after successful completion of mock-up/integrated testing performed under Task 7.

3.3.2 Task 5 – Fabrication/Inspection/Testing/Delivery of Transfer System

The following components, at a minimum, shall be fabricated (or procured), inspected, factory acceptance tested, and delivered to the Hanford Site under Task 5, consistent with definitions and requirements identified in CHPRC-02622:

- Transfer cask, as required to move capsules from WESF to the CSA. If the transfer cask is a commercial off-the-shelf (COTS) or government-off-the-shelf (GOTS) SSC that is certified for transportation, then the provided SSCs shall maintain a current CoC for that equipment and that use unless otherwise directed by CHPRC in writing.
- Transfer equipment

The number of units provided shall be sufficient to meet production rate requirements identified in CHPRC-02622.

These components shall be fabricated (or procured) per the CHPRC-approved final design developed under Task 3. Delivery to the Hanford Site will not occur until after successful completion of mock-up/integrated testing performed under Task 7.

3.3.3 Task 6 – Fabrication/Inspection/Testing/Delivery of Ancillary Equipment

The following components, at a minimum, shall be fabricated (or procured), inspected, factory acceptance tested, and delivered to the Hanford Site under Task 6:

- Special lift devices (“below the hook”)
- Transfer equipment, including equipment required to load empty canister into overpack, if applicable; retrieve capsules and load into canister; remove loaded canister from transfer cask, if applicable; and load into CSS
- Field closure system, including welding (and weld removal) equipment, vacuum drying equipment, and helium backfill/leak testing equipment
- Pumps, gauges, relief valves, rigging, measuring and test equipment required for canister loading, and CSS and transfer system handling and operations

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These components shall be fabricated (or procured) per the CHPRC-approved final design developed under Task 3. Delivery to the Hanford Site will not occur until after successful completion of mock-up/integrated testing performed under Task 7.

Cranes, manlifts, forklifts and, if needed, WESF hot cell manipulators will be provided by CHPRC.

3.3.4 Task 7 – Mock-Up/Integrated Testing

Mock-up and integrated testing of a first article of components provided in Tasks 4 to 6 shall be provided. Testing will be conducted at the Contractor's facility prior to delivery of components to the Hanford Site. First article mock-up/integrated testing will be performed with full scale and actual articles to be used at Hanford in order to address any technical/interface/operational risk items.

The mock-up and integrated test will be sufficient to demonstrate assembled system is functional and can be safely operated within the constraints (physical and equipment) at WESF and the CSA. The integrated test will demonstrate fit-up and operability of the components provided in Tasks 4 to 6. A completed test report will be provided to document the results of the mock-up/integrated testing.

3.4 Technical Support Services

The Contractor shall provide technical support services which shall include but not be limited to CSS systems assembly and testing at the Hanford Site, as well as during equipment installation, operational acceptance testing, readiness review, and capsule transfer operations.

3.4.1 Task 8 – Technical Support Services

Technical support services shall be provided as requested by CHPRC. Technical support services will include providing technical expertise on the CSS, transfer system, and ancillary equipment handling and operations. The provided services will include, but not be limited to, technical support for the following, at a minimum:

- Training for the CSS, transfer system, and ancillary equipment operation and maintenance
- Review of CHPRC procedures and work packages related to the CSS, transfer system, and ancillary equipment operations and maintenance
- Technical advice during CHPRC operational testing and dry runs at the Hanford Site related to the CSS, transfer system, and ancillary equipment
- Technical advice during CSA and WESF modifications construction and testing as requested to ensure compatibility with the CSS, transfer system, and ancillary equipment operations and maintenance
- Technical input for preparation, review, and disposition of other CESP contractor's field requests/requests for clarification or information (RCIs), design change notices (DCNs), and NCRs

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- Troubleshooting emerging issues during capsule, loading, and transfer operations
- Technical input during startup and operational readiness reviews to support demonstration of operational readiness

3.5 Special Requirements

The Contractor shall perform design engineering and prepare design media (e.g., calculations, analyses, drawings, specifications, procedures, and reports) under the direction of a PE registered in the State of Washington. All engineering calculations, analyses, drawings, specifications, procedures, and reports shall be stamped by a PE registered in the State of Washington. The responsibilities of the assigned PE for preparation and control of each deliverable shall be in accordance with laws and regulations of the State of Washington governing the practice of engineering.

All design calculations, analyses, specifications, drawings, and other detailed design documents produced under this Contract are property of the U.S. Government.

3.6 Acceptance Criteria

The preparation, review, and control of all engineering and design documents by the Contractor shall meet all approved Contractor procedures and applicable CHPRC procedures and requirements, as required by the Contract and incorporated provisions. Engineering design, specifications, calculations, and submittals shall be approved by CHPRC. Completion of design (including calculations) and specification requirements shall be stamped by a PE registered in the State of Washington.

To ensure that the detailed design complies with the functional design criteria (FDC) and any CHPRC-approved changes, the final design package and test reports submitted for CHPRC approval shall include a completed FDC compliance matrix and statement that certifies the Contractor's design complies with all project technical baseline documents and requirements.

Further specific acceptance criteria applicable to work scope performed after design completion includes the following:

- Fully documented satisfactory completion of all CSS SSC testing including, but not limited to, factory acceptance testing and integrated systems testing.
- Contractor-prepared DCNs shall comply with PRC-PRO-EN-8016, *Design Change Notice Process*, Appendix B.
- As-built drawings and specifications shall comply with the documentation requirements of PRC-PRO-EN-8017, *As-Built Verification Process*, and PRC-PRO-EN-2001, *Facility Modification Package Process*.
- All RCIs, DCNs, and NCR dispositions shall be answered/completed in a timely fashion to support construction such that no fieldwork is delayed.

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- All Contractor submittals will be reviewed, and input shall be provided in a timely fashion to support construction such that no field work is delayed.
- A design/fabrication verification plan shall be approved prior to the start of fabrication.
- Design/fabrication verification reports shall be completed within 2 weeks after observation is completed.
- All design calculations, drawings, and specifications shall be updated to reflect as-built conditions and design changes, approved by CHPRC, and available for entry by CHPRC into the Document Management and Control System (DMCS) within 2 weeks of completion of construction.
- Revised or additional design calculations, drawings, and specifications shall be updated, approved by CHPRC in the form of DCNs, and ready for formal issuance by CHPRC prior to being implemented in the field.

3.7 Organizational Interfaces

The contractual interface for this work is the CHPRC Contract Specialist (or designee). The CHPRC Buyer's Technical Representative (BTR) (or designee) will act as the technical point of contact.

3.8 Work Not Included

Work not included in this Contract includes any tasks not listed in this SOW either directly or by reference. The Contractor will not be performing any field construction work activities at the Hanford Site or capsule transfer operations, unless approved by CHPRC. The Contractor will not provide cranes, man-lifts, or forklifts required for equipment receipts at the Hanford Site, unless otherwise specified.

Radiological and industrial health and safety oversight, and other similar support required for field execution at the Hanford Site, will be performed by CHPRC.

3.9 Buyer-Furnished Materials and Equipment

CHPRC will furnish the following materials, equipment, and facilities at no cost to the Contractor for use in performing this work scope:

- Cranes, forklifts, man-lifts required for off-loading the CSS, transfer system, and ancillary equipment during delivery at the Hanford Site

3.10 Site Coordination Requirements

If onsite access is required, site visitation will be coordinated through the Contract Specialist. Personnel shall receive the proper orientations, safety briefings, and related training prior to site visitation.

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4.0 TECHNICAL REQUIREMENTS

The Contractor shall perform work in accordance with the terms and conditions of this Contract, CHPRC internal policies and procedures, and QA provisions, including safety programs, laws, orders, permits, rules, and confidentiality of information and intellectual property safeguards. All work shall be performed in strict accordance with the FDC, national, state and local codes and standards, specifications, drawings, exhibits, and any other documents, which by reference are made a part of the SOW. The Contractor shall obtain CHPRC's specific approval before any deviations are allowed.

CHPRC reserves the right to perform source inspections before and during fabrication. Inspections will be arranged jointly by CHPRC and the Contractor.

4.1 Functional Design Criteria

The Contractor shall comply with requirements identified in CHPRC-02622. Applicable national, state, and local codes and standards are identified in CHPRC-02622. The latest version of the codes and standards will be used, unless otherwise stated in CHPRC-02622. The requirements identified in CHPRC-02622 are hereby incorporated into and made a part of this Contract to the extent indicated in this SOW and appendices.

4.2 CHPRC Procedures

The conceptual and detailed design shall be performed in accordance with the latest versions of the CHPRC engineering procedures provided in Table 1. These procedures are hereby incorporated into and made a part of this Contract to the extent indicated in this SOW and appendices.

Table 1. CHPRC Design Procedures

Procedure No.	Title
PRC-GD-EN-40256	<i>Engineering Codes and Standards</i>
PRC-PRO-EN-097	<i>Engineering Design and Evaluation (Natural Phenomena Hazard)</i>
PRC-PRO-EN-40271	<i>Engineering Design Process</i>
PRC-STD-EN-40258	<i>Preliminary/Final Design Report</i>
PRC-STD-EN-40259	<i>Engineering Calculations</i>
PRC-STD-EN-40279	<i>Engineering Drawing Standards</i>
PRC-STD-EN-40280	<i>Engineering Specifications</i>
PRC-STD-EN-40281	<i>Engineering Test Documentation</i>

References: Complete citations for the procedures cited in this table are provided in Chapter 9.

CHPRC = CH2M HILL Plateau Remediation Company

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4.3 Exhibits

The forms shown in Table 2 are hereby incorporated into and made a part of this Contract.

Table 2. Contract Forms

Specification No.	Title
A – Form A-6004-757	Contractor Document Submittal Form
B – Form A-6004-833	Request for Clarification

4.4 Design Changes

The following design changes will be authorized:

- A. Changes to the Contractor’s shop drawings shall be approved in writing by the Buyer prior to implementation of the change. Either of the following constitute Buyer written approval:
 - a. Return of formally submitted revised drawings or drawing changes with an “A” or “B” status.
 - b. Hard copy or electronic approval of redline drawing changes by the Buyer’s Design Authority. In order to use a redline process, the Contractor’s change control process (i.e., redline process) must be submitted and approved by the Buyer prior to use.
- B. Changes to the Buyer’s design media will be made by the Buyer via a DCN.
- C. If the Contractor believes the design change constitutes a Contract change, the Contractor shall, within 5 working days, submit a Change Order detailing the change, justification, and basis for cost or schedule impact (if any).
- D. The BTR will collect drawing changes made during the fabrication process (documented on approved DCNs and shop drawings) and issue revised drawings to the Contractor prior to labeling. Labeling is to show the drawing revision number that incorporates all changes made to the item during fabrication. Final acceptance by the Buyer requires that the actual configuration of each item matches the drawing and revision number.

Any proposed changes (e.g., materials, dimensions, finish, fit, and function) to Buyer or Contractor design media need to be approved by the Buyer. The Contractor shall submit a copy of its redline process to the Buyer for approval. If the Contractor’s redline process has previously been approved by the Buyer, the Contractor may submit a statement declaring that it has been previously approved and that it has not changed. Any redline changes shall be approved and initialed by a Buyer’s Design Authority (designee) prior to execution of the change.

**Design & Fabrication of a Cask Storage System (CSS)
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The Contractor is required to provide appropriately trained and qualified staff to perform the type of work specified. Contractor personnel must display and maintain the necessary expertise, qualifications, and professional certification requirements to perform the assigned work.

With the exception of training courses that are only offered by the Hanford Site, any required job-specific training shall be provided by the Contractor, as applicable.

The required training shall be completed prior to work and verified by CHPRC.

The Contractor must meet the following minimum qualifications:

- A PE licensed by the State of Washington is required to supervise all engineering work performed.

CHPRC shall provide Contractor staff training as required for site and facility access and safe performance of assigned tasks, including CHPRC General Employee Training (CGET) for Hanford Site access and WESF safety indoctrination and facility-specific training. For onsite technical support services activities performed at WESF or the CSA, each person will obtain a CHPRC-issued dosimeter and receive the following required CHPRC training/qualifications as determined by an Employee Job Task Analysis:

- CGET
- WESF safety indoctrination and facility-specific training
- Occupational safety and industrial hygiene training, as applicable (see PRC-PRO-SH-40078, *Contractor Safety Processes*)
- Radiological Worker I training that is required for technical support services personnel performing activities at WESF or the CSA (respirator mask fit training is not required at this time)
- Radiation Worker II training as specified in section 6.8, Radiological Requirements

5.2 Security and Badging Requirements

For any onsite tour, a CHPRC-issued security identification badge is required for general site access. A minimum of 2 working days advance notice is needed for Hanford Site badging.

Within 2 working days prior to an approved Site visit, the Contractor shall provide a completed Security Badge Request Form to the BTR for each person to be involved (available for download from <http://chprc.hanford.gov/page.cfm/SubmittalsFormsDocs>). Escorted visitor accountability badges will be provided while touring the facilities as approved by the BTR.

Contractor employees entering the Hanford Site will be required to submit to vehicle searches and not personally carry or transport prohibited articles.

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For any onsite work, see the contract [Special Provisions – On Site Services, SP-5](#), for details.

5.3 Site Access and Work Hours

The standard work hours for CHPRC personnel are between 6:00 a.m. and 4:30 p.m., Monday through Thursday. Meetings with CHPRC and site access will be scheduled for standard work hours.

6.0 ENVIRONMENTAL, SAFETY, HEALTH, AND QUALITY REQUIREMENTS

The Contractor shall perform work safely, in a manner that ensures adequate protection for employees, the public, and the environment, and shall be accountable for the safe performance of work. The Contractor shall comply with and assist CHPRC in complying with Environmental, Safety, Health, and Quality (ESH&Q) requirements of all applicable laws, regulations, and directives.

The Contractor shall flow down ESH&Q requirements to the lowest-tier subcontractor performing work, commensurate with the risk and complexity of the work.

6.1 Safety Requirements

The Contractor shall comply with their facility-specific safety requirements in the execution of this work.

6.2 Quality Assurance and Control

The Contractor shall maintain a documented QA program and implementing procedures that meet the requirements of ASME NQA-1-2008, *Quality Assurance Requirements for Nuclear Facility Applications*, with ASME NQA-1a-2009, addenda (together also referred to herein as NQA-1), as specified in Table 3. Where NQA-1, Part II, language uses the terms “nuclear power plant” or “nuclear reactor,” these terms are considered equivalent to the term “nuclear facility.” This program shall include oversight and control of subcontracted work and work performed off and on the Hanford Site.

With its proposal, the Contractor shall submit a QAP demonstrating how the requirements of this Contract will be met. If any standard other than ASME NQA-1-2008 (with ASME NQA-1a-2009, addenda) is chosen as the basis for the quality management system, the Contractor must furnish a matrix showing the cross-references between the QAP and the requirements within the specified standard. The QAP shall be updated periodically throughout the project.

The Contractor shall submit a QA inspection plan for the performance of all inspection and testing activities as specified in the SOW, technical specifications, and drawings.

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Table 3. ASME NQA-1 Requirements (Safety Class/Quality Level 1)

Section	Basic Requirement	Application
ASME NQA-1-2008 Part 1		
1.	Organization	100, 200, and 300
2.	Quality Assurance Program	100, 200, 300, 400, and 500
3.	Design Control	100, 200, 300, 400, 500, 600, 700, 800, and 900
4.	Procurement Document Control	100, 200, 300, and 400
5.	Instructions, Procedures, and Drawings	100
6.	Document Control	100, 200, and 300
7.	Control of Purchased Items and Services	100, 200, 400, 500, 600, 700, and 800
8.	Identification and Control of Items	100, 200, and 300
9.	Control of Process	100, 200, 300, and 400
10.	Inspection	100, 200, 300, 400, 500, 600, and 800
11.	Test Control	100, 200, 300, 500, and 600 (except 602)
12.	Control of Measuring and Test Equipment	100, 200, 300, and 400
13.	Handling, Storage, and Shipping	100, 300, 400, and 600
14.	Inspection, Test, and Operating Status	100
15.	Control of Nonconforming Items	100, 200, 300, and 400
16.	Corrective Action	100
17.	Quality Assurance Records	100, 200, 300, and 400 (except 401)
18.	Audits	100, 200, 300, 400, 500, 600, 700, and 800
NQA-1-2009-1a Addenda		
	Part II, Subpart 2.2	100, 200, 300, 400, 500, 600, 700, and 800
	Part II, Subpart 2.5	100, 200, 300, 400, 500, 600, and 700
	Part II, Subpart 2.7	100, 200, 300, 400, 500, 600, and 700
	Part II, Subpart 2.14	100, 200, 300, 400, 500, 600, 700, and 800
	Part II, Subpart 2.15	100, 200, 300, 400, 500, 600, 700, and 800

References: ASME NQA-1-2008, 2008, *Quality Assurance Requirements for Nuclear Facility Applications*.

ASME NQA-1a-2009, 2009, *Quality Assurance Requirements for Nuclear Facility Applications*.

ASME = American Society of Mechanical Engineers

**Design & Fabrication of a Cask Storage System (CSS)
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Nuclear safety classification and quality level (QL) of each item will be identified on the left side of the parts list on the applicable drawing. The CSS and transfer systems, as a whole, are safety class QL 1 items; thus, the Contractor's QA program will require evaluation by the Buyer and placement on the Buyer's evaluated supplier list (ESL) in accordance with NQA-1. Suppliers providing QL 1 or 2 items or services to the Contractor are required to have their quality program evaluated and placed on the Contractor's ESL, or the component may be procured utilizing a CGD process as described in Section 6.5.

The Contractor shall submit its ESL within 15 calendar days of Contract award and show that subcontractors to perform NQA-1, Requirement 3, design control and services as part of this Contract are on its list in good standing. (Provide under submittal register item 1 in Appendix B.)

6.4 Safety Class/Significant (Quality Level 1 or 2) Item Critical Characteristics

The safety function, performance criteria, and acceptance criteria for each safety class/safety significant component and the inspection/test methods expected to be employed to verify each critical characteristic must be identified. The data packages for each safety class/safety significant component shipping lot shall contain the evidence demonstrating that all acceptance criteria have been met.

6.5 Commercial Grade Dedication

For procurement of safety significant QL 2 items from suppliers who cannot be placed on the Contractor's ESL, the component may be procured utilizing one of the commercial-grade item dedication processes described as follows. The Buyer will select the process to be used.

6.5.1 CGD Performed by the Buyer (Buyer Is the Dedicating Authority)

When the Buyer is the Dedicating Authority, CGD will be performed in accordance with PRC-PRO-EN-40189, *Commercial Grade Dedication Process*, via the following process:

1. The Contractor shall notify the Buyer of items needing to be commercial grade dedicated using an RCI Form A-6004-833. The RCI shall identify the item, the proposed manufacturer/supplier, and applicable supporting information.
2. If the Buyer concurs with the request, the Buyer will prepare the Technical Evaluation portion of the CHPRC Commercial Grade Dedication Package (Form A-6005-692) and return it to the Contractor with the dispositioned RCI.
3. The Contractor's plan for executing the dedication/acceptance processes (commercial grade survey, source verification, or special tests, inspections, and verifications) specified in the Technical Evaluation shall be submitted for Buyer approval prior to item procurement.
4. The BTR shall be informed at least 10 working days prior to performance of dedication/acceptance processes (with the exception of laboratory testing of materials and receipt inspections) to allow opportunity for CHPRC QA to witness.

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5. Results from dedication/acceptance processes shall be submitted for Buyer approval within 5 calendar days of being produced.

6.5.2 CGD Performed by the Contractor (Contractor Is the Dedicating Authority)

If the Contractor has a Buyer-approved NQA-1 program for the performance of CGD, and the Buyer elects to designate the Contractor as the Dedicating Authority, CGD will be performed via the following process:

1. The Contractor shall notify the Buyer of items to be commercial grade dedicated using an RCI Form A-6004-833. The RCI shall identify the item, the proposed manufacturer/supplier, and applicable supporting information.
2. If the Buyer concurs with the request, prior to item procurement, the Contractor shall prepare and submit for Buyer approval a CGD plan (Technical Evaluation) using the Contractor's approved procedure. CGD plans shall include the critical characteristics for acceptance, acceptance criteria, and acceptance methods identified in PRC-PRO-EN-40189.
3. The BTR shall be informed at least 10 working days prior to performance of dedication/acceptance processes (commercial grade survey, source verification, or special tests, inspections, and verifications, with the exception of laboratory testing of materials and receipt inspections) to allow opportunity for CHPRC QA to witness.
4. Completed CGD packages shall be submitted for Buyer approval within 10 calendar days of completion of dedication/acceptance processes.

6.6 Quality Assurance/Inspection Requirements

The Contractor shall comply with the Hanford Site procurement quality clauses listed in Table 4, and further detailed in Sections 6.6.1-6.6.19.

Table 4. Procurement Quality Clause List

QA Clause	Description
B01	QA Program Submittal and Pre-award Survey
B07	Certified Quality Program
B12	Supplier Use of Calibrated Equipment
B13	Fabrication/Inspection/Test Plan
B14	Supplier Use of Software Controlled Instruments and Equipment Containing Embedded Software (Firmware)
B15	Supplier Use of COTS Software
B16	Source Inspection
B18	Supplier Use of Spreadsheet Calculations Using Commercial-Off-The-Shelf Software
B19	First Article Inspection – Source

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Table 4. Procurement Quality Clause List

QA Clause	Description
B22	Nonconformance Documentation and Reporting
B25	Certified Weld Inspector
B28	Welding Procedures and Qualifications
B31	Nondestructive Examination Process
B49	Certified Material Test Report
B52	Inspection and Test Reports
B61	Certificate of Calibration
B65	NRTL Listed or Labeled Components
B73	Control of Graded Fasteners
B76	Procurement of Potentially Suspect or Counterfeit Items
B79	Certificate of Conformance
B82	Recommended Spare Parts Listing
B85	Packaging/Shipping Procedures

COTS = commercial-off-the-shelf

NRTL = nationally recognized testing laboratory

QA = quality assurance

6.6.1 Quality Assurance Program Submittal and Pre-award Survey (B01)

The Contractor shall submit the QA program manual that addresses the QA programs identified herein. The formal submittal documentation (cover letter) shall identify the specific bid request and project. If the Contractor's manual has been previously approved by the Buyer but is not current, the manual shall be updated and resubmitted to the Buyer with the proposal. If the manual has not changed since its previous approval by the Buyer, a statement to this effect shall be submitted with the proposal. The Buyer shall evaluate the Contractor's QA program prior to Contract award. This evaluation may include a survey of quality program implementation at the Contractor's facilities. If a program change is required, it will be identified to the Contractor prior to Contract award. A deficient or inadequate program may be used as the basis to deny award of this Contract.

6.6.2 Certified Quality Program (B07)

The Supplier shall maintain the certified quality program (e.g., the American Society of Mechanical Engineers [ASME], the International Organization for Standardization, NIST, and federal regulations) specified in the Purchase Order. A copy of the Supplier's current QA program manual and Authorizing Certificate shall be submitted to the Buyer with the proposal. The certificate shall remain current for the duration of the Purchase Order/Contract Order. The Supplier shall notify the Buyer of certificate cancellation or revocation.

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The Supplier shall submit certification stating that the Supplier owned equipment used by the Supplier in the performance of the work listed in the procurement documents has been calibrated utilizing standards whose calibration is traceable to the National Institute of Standards and Technology. If no such standard(s) is available, the Supplier shall submit for review and approval, documentation stating the basis of the equipment's calibration. This certification shall include a report of actual calibration results. The documentation shall be identifiable to the equipment being used and to any acceptance criteria listed in the procurement documents. The report shall contain the signature, with printed name, of the authorized representative of the agency who performed the calibration.

1. Prior to the start of work, the Supplier shall submit the latest calibration certification/report certifying that all calibrated Supplier used equipment is in-calibration.
2. During the course of the contract, the Supplier shall submit a calibration certification/report certifying that all calibrated Supplier owned equipment was calibrated at any manufacture recommended or other prescribed intervals that occur during the life of the work, or whenever the accuracy of the equipment is suspect.
3. Upon completion of work that requires its use, the Supplier shall submit a closeout calibration certification/report certifying that all calibrated Supplier used equipment was recalibrated.

If at any time during the course of contract, the Supplier owned equipment's as-found calibration measurements are out-of-tolerance; the Supplier shall notify the Buyer and submit a copy of the calibration report showing the discrepant as-found measurements. The Supplier shall evaluate the use of the equipment to determine if previously collected data is acceptable. The Supplier shall submit for approval written documentation of this evaluation, including, as necessary, recommendations for the recollection of previously collected data found to be unacceptable.

One copy of all required documentation, unless otherwise specified, shall be submitted for review and approval.

6.6.4 Fabrication/Inspection/Test Plan (B13)

The Supplier shall prepare a detailed fabrication/inspection/test plan (traveler) for insertion of Buyer-designated source inspection/witness notification points. Prior to starting work, the plan shall be submitted to the Buyer for review, approval, and insertion of Buyer's designated inspection/witness notification points unless otherwise specified in procurement documents. The plan shall include the following:

1. Traceability to Buyer's Purchase Order/Contract Order document number
2. Description of items to be fabricated/tested/inspected (e.g., components, subassemblies, and assemblies)

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3. Sequential fabrication/process steps
4. Sequential points for inspection and tests to be performed during fabrication/processing
5. Method/procedure to be used for performance of inspection/test/fabrication, including the following:
 - a. Each characteristic or attribute to be evaluated
 - b. The report form to be utilized
 - c. Specific codes/standard requirements as specified by procurement documents (e.g., ASME, ASTM International [ASTM], and the American National Standards Institute)
 - d. Sampling plans for final characteristics (e.g., acceptance quality level, lot size, and inspection level), where applicable

Subsequent revisions/modifications to the fabrication/inspection/test plan document require review and approval by the Buyer prior to implementation of the change. When subcontracting any portion of this Purchase Order/Contract Order, the Supplier is required to invoke the applicable QA program requirements on the subcontractor.

6.6.5 Supplier Use of Software Controlled Instruments and Equipment Containing Embedded Software (Firmware) (B14)

When Supplier owned calibrated equipment used on the Hanford Site:

- Contains software or programmable hardware, or
- Is controlled by a software driven external device (computer), or
- Collects data which is processed, analyzed, reduced, or otherwise modified using software before submittal to the Buyer.

The Supplier shall submit a statement certifying that the operation of equipment's programmable components is validated by calibration of the equipment. This statement shall list the equipment's programmable components and shall warrant that all three requirements listed below are met. The statement shall be on the Supplier's letterhead and signed, with printed name, by an authorized agent of the Supplier.

1. The equipment, including any software driven external device is calibrated, adjusted, and maintained as a unit, and
2. The calibration standards' data measured by the equipment is processed, analyzed, reduced, or otherwise modified by the same programmable components used in normal operation, and
3. The code contained in the programmable components including any data files, used to process, analyze, reduce, or otherwise modify the measured values, cannot be altered by the user during normal operation of the equipment. This does not include operational or control

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data (such as run time or count time) entered into the system following approved procedures or manufacture's published instructions.

Once copy of the documentation, unless otherwise specified, shall be submitted for review and approval prior to the equipment being used on site.

6.6.6 Supplier Use of Commercial-Off-the-Shelf Software (B15)

The Supplier shall submit the following documentation for all engineering analysis/design, data analysis/reduction, and engineering/environmental modeling COTS¹ software (application) used in the performance of work listed in the procurement documents.

1. Description of the COTS software, including the following:
 - a. Manufacturer's name and address
 - b. COTS application's title and version identifier
 - c. Operating system and hardware platform that will be used
 - d. Manufacturer's technical specifications or other published description of the COTS application's theoretical basis of operation or conceptual/mathematical models
2. Standard data sets used to verify operation of the COTS application:
 - a. Data sets shall cover each function or mode of operation that will be used during the performance of the work listed in the procurement documents.
 - b. When the COTS application's range of operation cannot be verified by a single data set, the Supplier shall submit, at a minimum, data sets covering the upper and lower thirds of its range.
3. The results expected from the standard data sets including the basis for accepting the standard data expected results, such as the following:
 - a. Comparison with hand calculations
 - b. Comparison with calculations using comparable proven problems
 - c. Comparison with information from published data
 - d. Comparisons with other validated computer programs
 - e. Comparisons with experiments and tests
4. The output generated by the COTS application using the standard data sets. This output shall include a statement warranting that the output accurately reflects the use of the standard data

¹ COTS software refers to an existing application that will be implemented on a standard operating system without the need for modification of its executable/object code.

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sets with the COTS application. The statement shall be on the Supplier's letterhead and signed, with printed name, by an authorized agent of the Supplier.

When required by the procurement documents, verification of the COTS application operation using the submitted standard data sets shall be witnessed a Buyer's representative.

One copy of the documentation, unless otherwise specified, shall be submitted for review and approval.

6.6.7 Source Inspection (B16)

All items are subject to inspection at the Supplier's facility or Supplier's subcontractor's facility by a Buyer's QA/quality control representative. The Supplier shall notify the Buyer at least 5 working days in advance of the time items will reach any inspection hold point established by the Buyer in the procurement package.

6.6.8 Supplier Use of Spreadsheet Calculations Using Commercial-Off-The-Shelf Software (B18)

The Supplier shall submit the following documentation for all spreadsheets used to perform mathematical calculations in the performance of work listed in the procurement documents.

1. Description of the COTS software application used to develop/run the spreadsheet, including:
 - a. Manufacture's name and address,
 - b. COTS spreadsheet application's title and version identifier
 - c. Operating system and hardware platform that will be used,
2. An electronic copy of the spreadsheet(s)
3. Description of the calculations, mathematical formulas, and embedded data used in the spreadsheet(s)
4. Standard data set(s) used to verify operation of the spreadsheet application
 - a. Data sets shall cover each calculation/function which will be used during the performance of the work listed in the procurement documents.
 - b. When the spreadsheet's range of calculations cannot be verified by a single data set, the Supplier shall submit, as a minimum, data sets covering the upper and lower thirds of its range
5. The results expected from the standard data set(s), including the basis for accepting the standard data expected results, such as:
 - a. Comparison with hand calculations
 - b. Comparison with calculations using comparable proven problems,

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- c. Comparison with information from published data
- 6. The output generated by the spreadsheet using the standard data set(s). This output shall include a statement warranting that the output accurately reflects the use of the standard data set(s) with the spreadsheet. The statement shall be on the Supplier's letterhead and signed, with printed name, by an authorized agent of the Supplier.

One copy of the documentation, unless otherwise specified, shall be submitted for review and approval.

6.6.9 First Article Inspection-Source (B19)

The Supplier shall schedule a first article inspection for the Buyer at the Supplier's plant to demonstrate compliance with all Purchase Order/Contract Order requirements. A comparable inspection shall be scheduled at production change points or for specified articles following major tooling, process, or design changes, or subsequent to evident quality degradation.

For a first article inspection, the Supplier shall present or demonstrate the following to the Buyer at a minimum:

- 1. Drawings, specifications, and other documentation used for manufacture, inspection, and testing of the first article
- 2. Objective evidence of inspection acceptance of tooling, processes, and test equipment used to produce the first article
- 3. Objective evidence of the Supplier's inspection and acceptance of the first article
- 4. Compliance with quality program requirements of this Purchase Order/Contract Order
- 5. Other applicable documentation, data, demonstrations, tests, or evidence of conformance of the first article to requirements of this Purchase Order/Contract Order

The Supplier shall notify the Buyer at least 5 working days before the first article is available for inspection.

6.6.10 Nonconformance Documentation and Reporting (B22)

All nonconformances identified at the Supplier's facility with a proposed disposition of "Accept" or "Repair" shall be approved by the Buyer before any corrective action is taken by the Supplier on the nonconformance.

Accept: A disposition that a nonconforming item will satisfactorily perform its intended function without repair or rework

Repair: A disposition requiring the processing of a nonconforming item so that its characteristics meet the requirements listed in the disposition statement of the NCR

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Nonconformances shall be documented by the Supplier on the Supplier's nonconformance form. After documenting the nonconformance, disposition, and technical justification, the form shall be forwarded to the Buyer.

After the recommended disposition has been evaluated by the Buyer, the form shall be returned to the Supplier with a disposition of approval or rejection. The Supplier may take corrective action on the nonconformance only after the form is approved.

The Supplier's nonconformance form shall be shipped with the affected item.

6.6.11 Certified Weld Inspector (B25)

Supplier personnel performing weld inspections shall be certified as a Certified Weld Inspectors in accordance with the requirements specified in AWS QC-1:2007, *Standard for AWS Certification of Welding Inspectors*.

The following documentation shall be submitted prior to the start of fabrication:

1. Current American Welding Society (AWS) Certified Weld Inspector certificates
2. Current and valid visual acuity examination (the examination must be performed annually)
3. Visual weld inspection procedures

Approval shall be obtained from the Buyer prior to the start of fabrication.

6.6.12 Welding Procedures and Qualifications (B28)

Welding procedures and personnel shall be qualified in accordance with the applicable AWS or ASME specifications as specified in the Purchase Order/Contract Order. The Supplier shall submit copies of all welding procedures, procedure qualification records, and welder qualification records to be employed in the performance of this Purchase Order/Contract Order. Buyer approval is required prior to the start of fabrication.

Changes and revisions to welding documentation shall be submitted to the Buyer for review and approval prior to use. When subcontracting any portion of this Purchase Order/Contract Order, the Supplier is required to invoke the applicable QA program requirements on the subcontractor.

6.6.13 Nondestructive Examination Process (B31)

NDE personnel shall be qualified and certified in accordance with American Society of Nondestructive Testing (ASNT) recommended guidelines (ANSI/ASNT CP-189, *ASNT Standard for Qualification and Certification of Nondestructive Testing Personnel*, or ASNT Recommended Practice No. SNT-TC-1A, *Personnel Qualification and Certification in Nondestructive Testing*), unless otherwise specified in the ordering data.

The Supplier is not authorized to begin fabrication until the following documentation has been reviewed and approved by the Buyer:

1. NDE qualification and certification procedures

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2. Personnel Levels I, II, and III qualifications and certifications, which include objective evidence of NDE training, formal education, examinations, experience, date of hire, and current eye examination
3. NDE method/examination procedures that are in accordance with the applicable codes/standards specified in procurement documents

All NDE reports and radiographs shall be traceable to the item examined, include all essential examination parameters, and be signed and dated by the NDE examiner. All NDE reports and radiographs shall accompany or precede shipment of material. Radiographs and radiographic technique and examination reports shall be subject to approval by the Buyer prior to shipment of completed items.

When subcontracting any portion of this Purchase Order/Contract Order, the Supplier is required to invoke the applicable QA program requirements on the subcontractor.

6.6.14 Certified Material Test Report (B49)

The certified material test report (CMTR) shall include actual results of all chemical analysis, tests, examinations, and treatments required by the material specification and this Purchase Order/Contract Order. The CMTR shall be legible, reference applicable specification number and year of edition, and be traceable to the material furnished by heat or lot number. All reports are subject to review and acceptance by the Buyer.

6.6.15 Inspection and Test Report (B52)

The Supplier shall submit legible, reproducible copies of inspection/test reports. The reports shall include the following:

1. Identification of the applicable inspection and/or test procedure utilized
2. Resulting data for all characteristics evaluated, as required by the governing inspection/test procedure
3. Traceability to the item inspected/tested (e.g., serial number, part number, and lot number)
4. Signature of the Supplier's authorized representative or agency that performed the inspections/tests

One copy of the documentation, unless otherwise specified, shall accompany the applicable items shipped.

6.6.16 Certificate of Calibration (B61)

The Supplier shall submit legible, reproducible copies of Certificates of Calibration, which are traceable to the NIST, for each article ordered. Each certificate shall be identified with the following:

1. Buyer's Purchase Order/Contract Order number
2. Identification of the article to which the certificate applies

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3. Standards used for calibration (each calibration certificate shall be signed by the Supplier's representative who is responsible for the calibration to attest to its authenticity)

One copy of the documentation, unless otherwise specified, shall accompany the applicable items shipped.

6.6.17 Nationally Recognized Testing Laboratory Listed or Labeled Components (B65)

All electrical control panels and electrical equipment (a general term including material, fittings, devices, appliances, luminaries [fixtures], apparatus, and the like used as a part of, or in connection with, an electrical installation) delivered or brought onto the site in performance of this Contract must be listed or labeled by an organization currently recognized by the Occupational Safety and Health Administration (OSHA) as a nationally recognized testing laboratory (NRTL).

1. All electrical equipment installed as part of this Contract must comply with NFPA 70, *National Electrical Code*, and where applicable, ANSI/IEEE C2, *National Electrical Safety Code*. The Buyer reserves the right to inspect electrical equipment and installations. The Contractor is responsible for notifying the Buyer when installations are available for inspection.
2. Electric motors shall be manufactured and tested in accordance with NEMA MG-1, *Motors and Generators*, as applicable, or listed by an organization currently recognized by OSHA as an NRTL. Documentation of NEMA MG-1 compliance shall be made available to the Buyer upon request.
3. Electrical equipment and devices for which there is a Underwriter's Laboratory category code identifying product categories must be listed or labeled by an OSHA-recognized NRTL.
 - a. The Canadian Standard Association "CSA" marking is currently recognized by OSHA as an NRTL when the label includes "US" or "NRTL" subscript.
 - b. The European Union "CE" marking (Council Directive 93/68/EEC, *CE Marking Directive*) is not currently recognized by OSHA as an NRTL marking.
 - c. ANSI/IEC 60529-2004, *Degrees of Protection Provided by Enclosures (IP Code)*, is not currently recognized by OSHA as an NRTL label.

(Note: for a list of approved NRTLs, see <http://www.osha.gov/dts/otpc/nrtl/>.)

4. Electrical equipment for which there is no listing category must be evaluated or tested using a method submitted to and approved by the Buyer prior to delivery of the equipment. A field evaluation performed by an NRTL prior to delivery is the preferred method for Buyer approval.

Electrical equipment is also subject to the "Counterfeit Suspect Item Program." Applicable information is provided in

<http://chprc.hanford.gov/page.cfm/CHPRCSafetyReferenceDocuments>.

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The following provisions are the minimum DOE requirements for high-strength graded fasteners produced in compliance with national consensus standards (e.g., SAE International, ASTM, and ASME).

1. Fasteners shall exhibit grade marks and manufacturer's identification symbols (headmarks) as required in the specifications referenced in the Purchase Order/Contract Order.
2. Any fasteners supplied with headmarks matching those displayed on the Suspect/Counterfeit Fastener Headmark list ([Suspect/Counterfeit headmarking and information](#)), or facsimiles thereof, shall be deemed to be unacceptable under the terms of this Purchase Order/Contract Order.
3. When requested by the Buyer, the Supplier shall provide a legible and reproducible copy of the manufacturer's CMTR. These CMTRs shall report the values of the actual chemical and physical tests performed on the represented fastener lot/material heat. Fastener packaging/labeling shall be traceable by lot number or other positive means to the CMTRs.
4. Fasteners shall be inspected to verify compliance with the Purchase Order/Contract Order requirements. Additionally, fasteners may also be subjected to destructive testing.
5. When requested by the Buyer, the Supplier shall provide a Certificate of Conformance that must certify conformance and traceability of supplied materials to the subject Purchase Order/Contract Order. The document must be legible and reproducible.

6.6.19 Procurement of Potentially Suspect or Counterfeit Items (B76)

Notwithstanding any other provisions of this agreement, the Supplier warrants that all items provided to the Contractor shall be genuine, new, and unused unless otherwise specified in writing by the Contractor. The Supplier further warrants that all items used by the Supplier during the performance of work for the Hanford Site, include all genuine, original, and new components, or are otherwise suitable for the intended purpose. Furthermore, the Supplier shall indemnify the Contractor, its agents, and third parties for any financial loss, injury, or property damage resulting directly or indirectly from material, components, or parts that are not genuine, original, and unused, or not otherwise suitable for the intended purpose. This includes but is not limited to materials that are defective, suspect, or counterfeit; materials that have been provided under false pretenses; and materials or items that are materially altered, damaged, deteriorated, degraded, or result in product failure.

Types of material, parts, and components known to have been misrepresented include but are not limited to the following:

- Fasteners
- Hoisting, shackles, turnbuckles, cable clamps, wire rope, rigging, and lifting equipment
- Cranes

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- Hoists
- Valves
- Pipe and fittings
- Electrical equipment and devices
- Plate, bar, shapes, channel members, and other heat-treated materials and structural items
- Welding rod and electrodes
- Computer memory modules

The Supplier's warranty also extends to labels and/or trademarks or logos affixed or designed to be affixed to items supplied or delivered to the Contractor. In addition, because falsification of information or documentation may constitute criminal conduct, the Contractor may reject and retain such information or items, at no cost, and identify, segregate, and report such information or activities to cognizant DOE officials.

The Supplier shall provide a written statement that "all items furnished under this Purchase Order/Contract Order are genuine (i.e., not counterfeit) and match the quality, test reports, markings, and/or fitness for use required by the Purchase Order/Contract Order."

The statement shall be on the Supplier's letterhead and signed by an authorized agent of the Supplier.

Any materials furnished as part of this Purchase Order/Contract Order that have been previously found to be suspect/counterfeit by DOE shall not be accepted. For further information on suspect/counterfeit items, refer to DOE G 414.1-2B Admin Chg 2, *Quality Assurance Program Guide* (<https://www.directives.doe.gov/directives-documents/400-series/0414.1-EGuide-2b-admchg2>).

Additional guidance, for information purposes only, is provided in DOE G 414.1-3, *Suspect/Counterfeit Items Guide for Use with 10 CFR 830 Subpart A, Quality Assurance Requirements, and DOE O 414.1B, Quality Assurance*.

For additional information, refer to IAEA-TECDOC-1169, *Managing Suspect and Counterfeit Items in the Nuclear Industry* (http://www-pub.iaea.org/MTCD/Publications/PDF/te_1169_prn.pdf).

6.6.20 Certificate of Conformance (B79)

The Supplier shall provide a legible/reproducible Certificate of Conformance. The Supplier's authorized representative responsible for quality shall sign the Certificate of Conformance.

The Certificate of Conformance shall meet the following criteria, at a minimum:

1. Identify the appropriate Purchase Order/Contract Order number under which the material, equipment, item, or service is being supplied.

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2. Each order/shipment shall include a Certificate of Conformance unique to that shipment.
3. The quantity of each line item shipped shall be identified on the Certificate of Conformance.
4. The Certificate of Conformance shall identify the specific procurement requirements to be met by the purchased item or service. The procurement requirements identified shall include any approved changes, waivers, or deviations applicable to the item or service.
5. The Certificate of Conformance shall be signed or otherwise authenticated by a Supplier's representative. For QLs 1 and 2 items, the person signing the Certificate of Conformance shall be responsible for this QA function and have the responsibilities and position described in the Supplier's QA program.

One copy of the documentation, unless otherwise specified, shall accompany the applicable item shipped. For subsequent shipments on this Purchase Order/Contract Order, reference may be made to documentation provided with earlier shipments instead of duplicating such documentation.

6.6.21 Recommended Spare Parts Listing (B82)

The Supplier shall submit, with or prior to item shipment, a recommended spare parts list. The list shall provide the name and address of the original supplier of the replacement part and the part's drawings, specification, or catalog identity including applicable change or revision information.

6.6.22 Packaging/Shipping Procedures (B85)

The Supplier shall prepare and submit for approval, prior to use, a procedure or plan for the packaging and shipping of items during the performance of this Purchase Order/Contract Order. The procedures shall include, as appropriate, cleanliness inspections prior to packaging, use of preservatives and coatings, descriptions of specially designed shipping containers, handling and rigging procedures, final inspections, and the type of transfer and shipping vehicles, as applicable to work scope. Examples of the packing and shipping inspection forms shall be included in the procedure or plan. Additional guidance may be found in ASME NQA-1-2008, Subpart 2.2, "Quality Assurance Requirements for Packaging, Shipping, Receiving, Storage, and Handling of Items for Nuclear Power Plants".

6.7 Environmental Requirements

The work scope of this SOW includes design tasks that will support development of environmental documents. CSA operations, including capsule storage within the CSS, will be permitted as a RCRA storage facility under WAC-173-303-630, "Dangerous Waste Regulations," "Use and Management of Containers." The technical performance standards that the CSS must satisfy to comply with WAC-173-303 will be established and maintained in CHPRC-02622.

**Design & Fabrication of a Cask Storage System (CSS)
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Tasks 1 to 7 will be performed offsite at the Contractor's facilities. Contractor personnel providing technical support services that require access inside WESF shall complete Radiation Worker II training (course 020001).

6.9 Nuclear Safety

This work is nuclear-related. The Contractor shall be subject to 10 CFR 830.122, "Nuclear Safety Management," "Quality Assurance Criteria," and the enforcement actions under 10 CFR 820, "Procedural Rules for DOE Nuclear Activities," Appendix A, "General Statement of Enforcement Policy."

7.0 MEETINGS AND SUBMITTALS**7.1 Meetings**

The Contractor shall participate in the following meetings, which will normally be a conference call or a meeting held at the Buyer's or Contractor's facility.

1. **Project kickoff meeting.** This meeting will be held after Contract award to review Contract requirements and processes, establish protocols for communications and interfaces, introduce key personnel and their roles and responsibilities, and review the project schedule. The agenda for the meeting will be provided by the Buyer.
2. **Fabrication kickoff meeting.** This meeting will be held after completion of the detailed design and prior to the start of fabrication. This meeting will be held to review Contract requirements and processes applicable to fabrication, introduce any new key personnel and their roles and responsibilities for the fabrication tasks, and review any updates to the schedule for fabrication tasks. It is preferred that this meeting be held at the Contractor's fabrication facility.
3. **Weekly progress meeting.** This meeting will be coordinated with the Contractor to occur at a day/time acceptable to both the Buyer and the Contractor. The Contractor shall provide a 2-week "look ahead" schedule, updated weekly, 1 day prior to each scheduled meeting
4. Any other meetings requested by the Buyer during the course of work as necessary.

The person or persons designated by the Contractor to attend all meetings shall have all required authority to make decisions and commit the Contractor to technical decisions made during meetings. The Contractor shall provide meeting minutes for CHPRC review and concurrence.

7.2 Submittals

1. The required submittals for this Contract are listed in Appendix B, Submittal Register.
2. The Contractor submittals identified herein on the Submittal Register shall be submitted by the Contractor using the Contractor Document Submittal Form (CDSF) A-6004-757

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(<http://chprc.hanford.gov/page.cfm/SubmittalsFormsDocs>). Instructions for completion of the CDSF are included with the form.

3. If the Contractor is using submittals previously approved by the Buyer, the Contractor may declare that no changes have taken place since the last submittal and ask for approval based on a previous referenced submittal.
4. CHPRC's DMCS will be used to electronically manage document submittals and RCIs for this contract.

7.2.1 Final Data Package

The Contractor shall prepare a final data package or data packages covering each fabricated component or shipping lot. At a minimum, the data package shall contain the following records applicable to the fabricated component:

- Manufacturer Certificate of Compliance/Conformance
- Final shop drawings (as applicable)
- Completed fabrication travelers
- Bill of Materials with heat numbers (serial and lot traceability records)
- Filler metal certification
- Weld map and weld inspection records
- Weld/base metal repair records
- Completed inspection/test records including hydrostatic testing, leak testing, and load testing, as applicable
- Radiographic test reports and radiographic film
- Travelers and/or checklists
- Inspector visual acuity examinations
- Instrument calibration records
- CMTRs
- Certificates of Conformance (for gauges and materials without CMTRs)
- Measuring and test equipment calibration records
- Product data sheets for stainless steel contacting materials
- Applicable NCRs (if generated)

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- Applicable CHPRC RCI forms

The final data package shall be assembled in the following manner:

1. Coversheets shall be labeled with Contract Order, lot number, equipment identification numbers, and manufacturer serial numbers.
2. The final data package shall have a table of contents listing each section, and each section shall be paginated (e.g., Section 1, pp. 1–10).
3. Cross-reference tables between serial/equipment identifier numbers and the applicable records shall be included to ensure future traceability, if this information is not contained on the record itself.

Alternate methods of organizing final data packages may be proposed but are subject to approval by the Buyer. All documents shall be legible and reproducible to the third generation.

8.0 DELIVERABLES, PROJECT CONTROLS, MILESTONES, AND PERFORMANCE SCHEDULE REQUIREMENTS

8.1 Deliverables

Deliverables are defined within this SOW and Submittal Register (Appendix B).

- Submittal Register (see Appendix B)
- Deliverables include but are not limited to the following:
 - Detailed work plan
 - Work schedule
 - Weekly status reports
 - QAP
 - QA inspection plan
 - CoC amendment plan (if required)
 - CDR
 - Preliminary design report
 - Final design report
 - Completed compliance matrix (CDR, preliminary design, and final design)
 - Design report
 - Radiological shielding calculations
 - Fabrication shop drawings
 - Fabrication acceptance inspection plan
 - Warehouse plan
 - Equipment factory acceptance test plans, specifications, and procedures

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- Factory acceptance test reports
- CSS, transfer system, and ancillary equipment deliveries
- Final data packages

8.2 Project Controls

In addition to providing weekly status at the progress meetings identified in Section 7.1, the Contractor shall provide a monthly progress report, including monthly cost and schedule performance for the duration of the Contract. The monthly progress report shall provide schedule and cost performance for each WBS element identified in Section 3.1. For applicable WBS elements, reporting detail shall be sufficient to track individual cost and schedule performance for manufacture and/or procurement of significant components of the storage system, transfer system, and ancillary equipment, including, as a minimum, canister and shielded overpack fabrication, inspection, and testing.

The progress will be measured against the detailed work plan schedule, with CHPRC-approved updates. Weekly labor cost reports will be provided for work performed under time and materials accounts.

8.3 Performance Schedule

The overall schedule objective for the CESP to complete transfer of all capsules from WESF is September 30, 2022. Completion of Tasks 1-8 are requested by the following dates to achieve the overall schedule objective:

Task 1 - Conceptual Design	June 1, 2017
Task 2 - Preliminary Design	April 1, 2018
Task 3 - Final Design	August 1, 2018
Task 4 - Fabrication, Inspection, Testing, Delivery of CSS	July 1, 2020
Task 5 – Fabrication, Inspection, Testing, Delivery of Transfer System	July 1, 2020
Task 6 – Fabrication, Inspection, Testing, Delivery of Ancillary Equipment	July 1, 2020
Task 7 – Mock-up/Integrated Testing	Pre-requisite to completion of Tasks 4, 5, and 6
Task 8 – Technical Support Services	September 30, 2022

9.0 REFERENCES

10 CFR 820, “Procedural Rules for DOE Nuclear Activities,” Appendix A, “General Statement of Enforcement Policy,” *Code of Federal Regulations*. Available at:
<http://www.ecfr.gov/cgi-bin/text-idx?SID=fac0bc8a83b428fa68bfa44d50672b3&mc=true&node=pt10.4.820&rgn=div5>.

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10 CFR 830.122, “Nuclear Safety Management,” “Quality Assurance Criteria,” *Code of Federal Regulations*. Available at: <http://www.gpo.gov/fdsys/granule/CFR-2011-title10-vol4/CFR-2011-title10-vol4-sec830-122>.

ANSI/ASNT CP-189, 2011, *ASNT Standard for Qualification and Certification of Nondestructive Testing Personnel*, American National Standards Institute/American Society of Nondestructive Testing, Columbus, Ohio.

ANSI/IEC 60529-2004, 2004, *Degrees of Protection Provided by Enclosures (IP Code)*, American National Standards Institute/International Electrotechnical Commission, published by National Electrical Manufacturers Association, Arlington, Virginia.

ANSI/IEEE C2, 2012, *National Electrical Safety Code*, American National Standards Institute/IEEE Standards Association, New York, New York.

ASME NQA-1-2008, 2008, *Quality Assurance Requirements for Nuclear Facility Applications*, American Society of Mechanical Engineers, New York, New York.

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AWS QC-1:2007, 2007, *Standard for AWS Certification of Welding Inspectors*, American Welding Society, Miami, Florida. Available at: <https://www.aws.org/library/doclib/QC1-2007.pdf>.

CHPRC-02236, 2015, *Extended Capsule Storage Project Safety Design Strategy*, Rev. 0, CH2M HILL Plateau Remediation Company, Richland, Washington.

CHPRC-02252, 2016, *Capsule Extended Storage Project (W-135) Functions and Requirements Document*, Rev. 2, CH2M HILL Plateau Remediation Company, Richland, Washington.

CHPRC-02622, 2016, *Cask Storage System (CSS) Functional Design Criteria (Project W-135)*, Rev. 1, CH2M HILL Plateau Remediation Company, Richland, Washington.

Council Directive 93/68/EEC, 1993, *CE Marking Directive*, Council of Europe, Brussels, Belgium. Available at: <http://www.conformance.co.uk/directives/Resources/CEmarking.pdf>.

DOE O 413.3B, 2010, *Program and Project Management for the Acquisition of Capital Assets*, U.S. Department of Energy, Washington, D.C. Available at: <https://www.directives.doe.gov/directives-documents/400-series/0413.3-BOrder-b/view>.

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DOE G 414.1-2B Admin Chg 2, *Quality Assurance Program Guide*, U.S. Department of Energy, Washington, D.C. Available at: <https://www.directives.doe.gov/directives-documents/400-series/0414.1-EGuide-2b-admchg2>.

DOE G 414.1-3, *Suspect/Counterfeit Items Guide for Use with 10 CFR 830 Subpart A, Quality Assurance Requirements, and DOE O 414.1B, Quality Assurance*, U.S. Department of Energy, Washington, D.C.

DOE-STD-1189-2008, 2008, *Integration of Safety Into the Design Process*, U.S. Department of Energy, Washington, D.C. Available at: <http://energy.gov/ehss/downloads/doe-std-1189-2008>.

DOE-STD-3024-2011, 2011, *Content of System Design Descriptions*, U.S. Department of Energy, Washington, D.C. Available at: <http://energy.gov/ehss/downloads/doe-std-3024-2011>.

IAEA-TECDOC-1169, 2000, *Managing Suspect and Counterfeit Items in the Nuclear Industry*, International Atomic Energy Agency, Vienna, Austria. Available at: http://www-pub.iaea.org/MTCD/Publications/PDF/te_1169_prn.pdf.

IEEE 1012-2012, *IEEE Standard for Software Verification and Validation*, IEEE Standards Association, New York, New York.

NEMA MG-1, 2014, *Motors and Generators*, National Electrical Manufacturers Association, Arlington, Virginia.

NFPA 70, 2014, *National Electrical Code*, National Fire Protection Association, Quincy, Massachusetts.

PRC-GD-EN-40256, 2015, *Engineering Codes and Standards*, Revision 0, Change 2, CH2M HILL Plateau Remediation Company, Richland, Washington.

PRC-PRO-EN-097, 2015, *Engineering Design and Evaluation (Natural Phenomena Hazard)*, Revision 2, Change 0, CH2M HILL Plateau Remediation Company, Richland, Washington.

PRC-PRO-EN-2001, 2014, *Facility Modification Package Process*, Revision 1, Change 4, CH2M HILL Plateau Remediation Company, Richland, Washington.

PRC-PRO-EN-8016, 2015, *Design Change Notice Process*, Revision 1, Change 3, CH2M HILL Plateau Remediation Company, Richland, Washington.

PRC-PRO-EN-8017, 2009, *As-Built Verification Process*, Revision 0, Change 2, CH2M HILL Plateau Remediation Company, Richland, Washington.

PRC-PRO-EN-8336, 2014, *Design Verification*, Revision 0, Change 4, CH2M HILL Plateau Remediation Company, Richland, Washington.

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- PRC-PRO-EN-20050, 2014, *Engineering Configuration Management*, Revision 0, Change 7, CH2M HILL Plateau Remediation Company, Richland, Washington.
- PRC-PRO-EN-40189, 2015, *Commercial Grade Dedication Process*, Revision 1, Change 3, CH2M HILL Plateau Remediation Company, Richland, Washington.
- PRC-PRO-EN-40264, 2015, *Formal Design Review*, Revision 0, Change 1, CH2M HILL Plateau Remediation Company, Richland, Washington.
- PRC-PRO-EN-40271, 2011, *Engineering Design Process*, Revision 0, Change 2, CH2M HILL Plateau Remediation Company, Richland, Washington.
- PRC-PRO-EN-40357, 2011, *Engineering Software Management*, Revision 0, Change 1, CH2M HILL Plateau Remediation Company, Richland, Washington.
- PRC-PRO-SH-40078, 2013, *Contractor Safety Processes*, Revision 1, Change 8, CH2M HILL Plateau Remediation Company, Richland, Washington.
- PRC-STD-EN-40258, 2011, *Preliminary/Final Design Report*, Revision 0, Change 1, CH2M HILL Plateau Remediation Company, Richland, Washington.
- PRC-STD-EN-40259, 2011, *Engineering Calculations*, Revision 0, Change 0, CH2M HILL Plateau Remediation Company, Richland, Washington.
- PRC-STD-EN-40261, 2011, *Conceptual Design Report*, Revision 0, Change 1, CH2M HILL Plateau Remediation Company, Richland, Washington.
- PRC-STD-EN-40279, 2010, *Engineering Drawing Standards*, Revision 0, Change 0, CH2M HILL Plateau Remediation Company, Richland, Washington.
- PRC-STD-EN-40280, 2011, *Engineering Specifications*, Revision 0, Change 0, CH2M HILL Plateau Remediation Company, Richland, Washington.
- PRC-STD-EN-40281, 2012, *Engineering Test Documentation*, Revision 0, Change 0, CH2M HILL Plateau Remediation Company, Richland, Washington.
- Recommended Practice No. SNT-TC-1A, 2011, *Personnel Qualification and Certification in Nondestructive Testing*, American Society of Nondestructive Testing, Columbus, Ohio.
- Resource Conservation and Recovery Act of 1976*, 42 USC 6901 et seq. Available at: <http://www.epa.gov/rcra>.
- WAC 173-303, "Dangerous Waste Regulations," *Washington Administrative Code*, Olympia, Washington. Available at: <http://apps.leg.wa.gov/WAC/default.aspx?cite=173-303>.
303-630, "Use and Management of Containers."

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Appendix A

Alternate Capsule Packaging Requirement for Borehole Disposal

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The U.S. Department of Energy (DOE) is considering an alternate capsule packaging requirement intended to better integrate with a potential deep borehole disposal option. With this packaging option the Contractor shall be responsible for the design, fabrication, supply and delivery of a capsule extended dry storage system that meets the requirements of the base option and facilitates later deep borehole disposal of the capsules by satisfying the specific supplemental requirements identified in this Appendix. Where the supplemental requirements in this Appendix are in conflict with the requirements of the base option, the supplemental requirements in this Appendix shall take precedence for this alternate packaging option.

For this alternate packaging option, the capsule extended dry storage system shall be based upon the Contractor's Nuclear Regulatory Commission (NRC)-approved Certificate of Compliance or Conformance (CoC) Structures, Systems, and Components (SSCs) typically consisting of, but not limited to, the following SSCs: dual or multi-purpose canister, dual purpose cask, transfer casks, storage casks, and transfer systems.

In addition, for this alternate packaging option, the Contractor shall design, fabricate, supply and deliver universal canisters into which the capsules are placed, stored at the Hanford Site and later transported to the borehole site in accordance with 10 CFR Part 71 requirements when the universal canister(s) are placed within the Contractor's NRC-approved dual purpose canister and transportation system; and for which these universal canisters are compatible with both their current NRC-approved systems and CoC'd systems, as well as the design requirements necessary to support deep borehole disposal as outlined below.

If any modification or amendment to the existing NRC license or CoC for storage or off-site transport is required in accommodation of the universal canisters, the Contractor shall complete activities necessary to successfully obtain the NRC approved amendment, including performance of any required design and analysis. These activities shall be captured as line items in this option's technical proposal submittal, and cost and schedule submittals.

Specific requirements for the universal canisters are as follows:

- The universal canister shall be a right circular cylinder with a maximum outside diameter of 16.51 cm (6.5 inches), a nominal height/length of 56.388 cm (22.2 inches), and a maximum height/length of 497.84 cm (196 inches), including any lifting features; less any dimensional tolerances required to allow close tolerance emplacement into the waste package / disposal overpack.
- The external edges of the universal canister shall have a radius of curvature sufficient to protect against gouging of the internal surfaces of any container into which it is placed, and the external surface finish shall be prepared so as to minimize contamination trapping and facilitate decontamination should it be necessary (e.g. RMS 50 / less than an N value of 7, or better)

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- No more than three capsules can be placed in a single layer.
- The maximum weight of a filled universal canister shall be 861.83kg (1,900 lb).
- Organic, hydrocarbon-based material shall not be used or placed in the universal canister.
- The universal canister shall be limited to a maximum decay heat of 213 watts per foot (700 watts per meter) of universal canister height at time of loading (assumed to be in 2022).
- The storage and transportation system used to store and transport the universal canisters shall be designed such that the universal canisters can be removed from the storage and transportation system without having to cut through welds or welded containers.
- The universal canister-lifting feature shall be incorporated into the universal canister top lid and shall not protrude beyond the universal canister side walls.
- The capsule universal canister shall be fabricated from Type 300-series stainless steels compatible with the materials used for the outer cesium and strontium capsules.
- The capsule universal canister shall be designed for welded closure.
- The capsule universal canister shall be vacuum dried, filled with an inert gas (e.g., helium) and sealed.
- External welds on the universal canister except the closure welds shall be treated (e.g., stress relieved) prior to loading to mitigate the potential for stress corrosion cracking.
- The capsule universal canister shall be capable of being marked on the lid and body with a unique identifier indicating its contents prior to loading. The markings shall remain legible for the service life of the universal canister.
- Maximum temperatures shall not exceed applicable limits for the capsules or their contents, or the contractor's universal canister design, or the contractor's approved canister and storage cask design. [After disposal in a deep borehole, the maximum temperature at the salt-metal interfaces shall not exceed values specified for the extended storage configuration in Table 4-1 of CHPRC-02662. For the purpose of this calculation, the temperature of the outer surface of the universal canister shall be assumed to be 250°C.]

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- The universal canister (including the canister-lifting feature) shall be able to bear the weight of the number of universal canisters that could be stacked on top of it in a disposal configuration, as shown in Table A-1.

Table A-1. Possible Number of Canisters Stacked on Top of Bottom Canister

Height of Canister, in Terms of Capsule Lengths	Number of Canisters That Could Be Stacked on Top of Bottom Canister
1 capsule length	7 canisters
2 capsule lengths	3 canisters
3 capsule lengths	2 canisters
4 capsule lengths	1 canister
5 – 9 capsule lengths	0 canisters

The above universal canister design requirements are based upon the utilization of a waste package / disposal overpack. It should be noted that the waste package / disposal overpack is NOT within the scope of this option and shall be provided by the DOE under separate contract or as GFE at such time as the borehole disposal option is elected.

However, some of the design requirements associated with the universal canister are driven by the following preliminary design concepts, preliminary design approaches and preliminary thermal analysis data points as related to the borehole disposal characteristics, conditions and limits associated with the waste package / disposal overpack, and therefore are provided as “information only” to the contractors for consideration in the development of the cost, schedule, and key activities associated with this option:

- The borehole disposal site will have minimal capabilities beyond emplacing waste packages into a borehole.
- - Hence the universal canisters must be readily transferable to a waste package / disposal overpack without needing to cut through welds or welded containers to access the universal canisters.
- A preliminary thermal analysis indicates that the thermal load at the time of disposal (assumed to be 2041) can be no more than 450 W/m to meet the 250°C temperature limit at the waste package wall in a deep borehole
 - assumes an ambient temperature of 170°C in the borehole at a depth of 5 km,
 - each waste package holds a maximum of nine lengths of capsule, e.g. nine universal canisters each loaded with three capsules
- The maximum outside diameter is based on preliminary thermal calculations that indicate that, in order to meet a 250°C temperature limit at the waste package surface when

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disposed of in a deep borehole, no more than three capsules can be placed in a single layer.

- A waste package with three capsules per layer is expected to have an inner cavity diameter of 16.51 cm (6.5 inches).
 - Anticipating that the capsule-filled universal canister will be placed in a waste package prior to disposal in a deep borehole, the maximum diameter of the universal canister therefore is 16.51 cm (6.5 inches) less any dimensional tolerances required to allow close tolerance emplacement into the waste package / disposal overpack.
- The overall external length of each waste package / disposal overpack is 563.88 cm (18.5 feet or 222 inches)
 - Most of the proposed design alternatives for deep borehole disposal include waste packages on the order of 5 meters (196.85 inches) in internal cavity length.
 - Anticipating that the capsule-filled universal canister will be placed in a waste package prior to disposal in a deep borehole, that there can be no more than nine capsule-filled universal canisters per waste package, and that each capsule-filled universal canister has a nominal height / length of 56.388 cm (22.2 inches) – thus limiting the number of universal canisters to eight per waste package, the maximum height (length) of the universal canister is 497.84 cm (196 inches).
 - The borehole backfill chosen will have thermal properties similar to that of bentonite.

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Appendix B

Submittal Register

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The following notes apply to Tables B-1 to B-3 of this appendix.

1. Task number.
2. Submittal type, number of copies, and format.
 - 2H = Two hardcopies.
 - APW = Approval required prior to work. (CHPRC must approve the Contractor's submittal prior to the Contractor being authorized to proceed with any activity/work associated with the submittal.)
 - AP = Approval required. (CHPRC must approve the Contractor's submittal; however, work associated with the submittal may proceed prior to CHPRC approval.)
 - E = Electronic submittal.
 - P6 = Primavera Project Planner schedule.
 - GEN = General or open format/media.
 - INFO = No CHPRC approval required.
 - MFC = Microsoft format compatible application (Word, Excel, Access, or PowerPoint).
3. Technical submittals are engineering or quality affecting submittals. "Yes" in this column designates the need for formalized comments and a formalized comment disposition process by the Contractor. Examples of technical submittals would include engineering or fabrication drawings, or certificates of conformance.
4. Vendor information for project record purposes.
5. Description/document title: Describe submittal.
 - CDR = conceptual design report
 - PE = Professional Engineer
 - QAP = quality assurance plan
6. Required submittal date or its relationship to project milestones. Examples are July 14, 2009, or award + 15 days, contract completion + 30 days.
 - A = contract award
 - CD = completion of conceptual design
 - FD = completion of final design
 - PD = completion of preliminary design
7. Approver organization: Examples are Construction Manager (CM), Safety, Quality Assurance (QA), Environmental (Env), Engineering (Eng), Fire Protection Engineer (FPE), Radiation Control (RC), and Nuclear Safety (NS).
 - BTR = Buyer's Technical Representative
 - IS&H = Industrial Safety and Health
 - PM = Project Manager
8. The number of workdays required for review of the submittal.
9. Contract reference: Cross reference to the Contract requirement that defines this submittal.

CHPRC = CH2M HILL Plateau Remediation Company

CSS = cask storage system

Design & Fabrication of a Cask Storage System (CSS) for the Capsule Extended Storage Project

The Contractor shall meet the required schedule and provide the documents specified in accordance with the General Submittals shown in Table B-1 that apply to multiple tasks.

Table B-1. General Tasks

Contract Requisition 282044: Design/Fabrication of a Cask Storage System (CSS) for the Capsule Extended Storage Project (W-135) Revision 0								
1. No.	2. Type and Number of Copies	3. Technical Submittal	4. Vendor Information	5. Description/Document Title	6. Submittal Date (Calendar Days)	7. Approver Organizations	8. CHPR C Review Time (Work Days)	9. Contract Paragraph or Requirement Reference
G-1	AP, E, GEN	Yes	No	Project detailed work plan	A + 30 days	BTR PM	8	3.1
G-2	AP, E, P6	No	No	Project detailed schedule	A + 30 days	BTR, PM	8	3.1
G-3	INFO, E, GEN	No	No	Monthly progress report, including monthly cost and schedule performance	5th of each month	BTR PM	8	8.2
G-4	INFO, E, GEN	No	No	Labor cost report	Weekly (on Monday)	BTR	8	8.2
G-6	AP, E, P6	No	No	Schedule updates	As necessary	BTR	8	3.1
G-7	AP, E, GEN	No	No	Proof of PE license for design engineers	As required	BTR Engineering	8	3.5, 5.1
G-8	AP, E, GEN	No	No	Employee Training Records	2 days prior to visit	BTR IS&H	8	5.1
G-9	E, GEN	No	No	Meeting Minutes	3 days after meeting	BTR	8	7.1

Design & Fabrication of a Cask Storage System (CSS) for the Capsule Extended Storage Project

The Contractor shall meet the required schedule and provide the documents specified in accordance with the submittals shown in Table B-2 for design tasks (Tasks 1 to 3).

Table B-2. Design Tasks 1 to 3

Contract Requisition 282044: Design/Fabrication of a Cask Storage System (CSS) for the Capsule Extended Storage Project (W-135) Revision 0								
1. No.	2. Type and Number of Copies	3. Technical Submittal	4. Vendor Information	5. Description/Document Title	6. Submittal Date (Calendar Days)	7. Approver Organizations	8. CHPR C Review Time (Work Days)	9. Contract Paragraph or Requirement Reference
D-1	APW, E, GEN	Yes	No	Draft conceptual design documentation for review (including drawings, specifications, analysis, equipment lists, tooling lists, and instrument lists)	CD – 60 days	BTR, Engineering QA	16	3.2.1
D-2	APW, E, + 2H	Yes	No	Final conceptual design documentation for approval (including drawings, specifications, analysis, equipment lists, tooling lists, and instrument lists)	CD	BTR, Engineering QA	8	3.2.1
D-3	AP, E, GEN	No	No	Completed compliance matrix for CDR	CD – 60 days	BTR, QA Engineering	16	3.2
D-4	AP, E, GEN	No	No	Updated QAP	CD + 5 days	BTR, QA	8	6.2
D-5	APW, E + GEN	Yes	No	Preliminary design report draft for review (including drawings, specifications, analysis, equipment lists, tooling lists, and instrument lists)	PD – 60 days	PM BTR Engineering	16	3.2.2
D-6	AP, E, GEN	No	No	Completed compliance matrix for preliminary design report	PD – 60 days	BTR, QA Engineering	8	3.2

Design & Fabrication of a Cask Storage System (CSS) for the Capsule Extended Storage Project

Table B-2. Design Tasks 1 to 3

Contract Requisition 282044: Design/Fabrication of a Cask Storage System (CSS) for the Capsule Extended Storage Project (W-135) Revision 0								
1. No .	2. Type and Numbe r of Copies	3. Technic al Submitt al	4. Vendor Informatio n	5. Description/Docume nt Title	6. Submittal Date (Calendar Days)	7. Approver Organizatio ns	8. CHPR C Review Time (Work Days)	9. Contract Paragraph or Requireme nt Reference
D-7	AP, E, + 2H	Yes	No	Final preliminary design report documentation for approval (including drawings, specifications, analysis, equipment lists, tooling lists, and instrument lists)	PD	BTR Engineering QA	8	3.2.2
D-8	AP, E, MFC	Yes	No	Fabrication, inspection, and testing plan	PD – 17 days	BTR, QA Engineering	8	3.2.2
D-9	AP, E, GEN	Yes	No	Updated QAP	PD + 5 days	BTR QA	8	6.2
D-10	APW, E, GEN	Yes	No	Draft final design documentation for review (including drawings, specifications, analysis, equipment lists, tooling lists, and instrument lists)	FD – 60 days	BTR Engineering QA	16	3.2.3
D-11	APW, E, GEN	Yes	No	Design report	FD – 60 days	BTR, QA Engineering	16	3.2.3
D-12	AP, E, + 2H	Yes	No	Final design documentation for approval (including drawings, specifications, analysis, equipment lists, tooling lists, and instrument lists)	FD	BTR Engineering QA	8	3.2.3
D-13	AP, E, GEN	No	No	Completed compliance matrix for final design	FD – 60 days	BTR, QA Engineering	16	3.2.3

Design & Fabrication of a Cask Storage System (CSS) for the Capsule Extended Storage Project

Table B-2. Design Tasks 1 to 3

Contract Requisition 282044: Design/Fabrication of a Cask Storage System (CSS) for the Capsule Extended Storage Project (W-135) Revision 0								
1. No .	2. Type and Numbe r of Copies	3. Technic al Submitt al	4. Vendor Informatio n	5. Description/Docume nt Title	6. Submittal Date (Calendar Days)	7. Approver Organizatio ns	8. CHPR C Review Time (Work Days)	9. Contract Paragraph or Requireme nt Reference
D-14	AP, E, GEN	No	No	System design descriptions	FD – 60 days	BTR Engineering	16	3.2.3
D-13	AP, E, GEN	No	No	Updated QAP	FD + 5 days	BTR QA	8	6.2
D-15	APW, E, GEN	Yes	No	QA inspection plans	30 days prior to use	BTR Engineering QA	8	6.2
D-16	APW, E, GEN	Yes	No	Software model documentation	30 days prior to commencement of long-lead procurements	BTR Engineering QA	8	3.2

Design & Fabrication of a Cask Storage System (CSS) for the Capsule Extended Storage Project

The Contractor shall meet the required schedule and provide the documents specified in accordance with the submittals shown in Table B-3 for fabrication, inspection, testing, and delivery tasks (Tasks 4 to 7).

Table B-3. Fabrication, Inspection, Testing and Delivery Tasks 4 to 7

Contract Requisition 282044: Design/Fabrication of a Cask Storage System (CSS) for the Capsule Extended Storage Project (W-135) Revision 0								
1. No.	2. Type and Number of Copies	3. Technical Submittal	4. Vendor Information	5. Description/Document Title	6. Submittal Date (Calendar Days)	7. Approver Organizations	8. CHPRC Review Time (Work Days)	9. Contract Paragraph or Requirement Reference
F-1	APW, E, GEN	Yes	No	Proposed commercial grade dedication plans and technical evaluations	45 days prior to commencement of procurement	BTR Engineering QA	8	6.5
F-3	APW, E, GEN	Yes	No	Fabrication traveler	45 days prior to start of fabrication	BTR Engineering QA	8	3.3
F-4	AP, E, GEN	Yes	No	Final data package table of contents	45 days prior to start of fabrication	BTR Engineering	8	7.2.1
F-5	APW, E, GEN	Yes	No	Fabrication welder/inspector qualification records and weld procedures	45 days prior to start of fabrication	BTR Engineering QA	8	3.3, 6.6.8, 6.6.9
F-6	APW, E, GEN	Yes	No	Nondestructive examination procedures and qualifications	45 days prior to start of fabrication	BTR Engineering QA	8	3.3, 6.6.10
F-7	AP, E, GEN	Yes	No	Instrument calibration certificates	30 days prior to the use of measuring and test equipment	BTR Engineering QA	8	3.3, 6.6.13
F-8	APW, E, GEN	Yes	No	Fabrication nonconformance report	Prior to implementation of resolution	BTR Engineering QA	8	3.6, 6.6.7

Design & Fabrication of a Cask Storage System (CSS) for the Capsule Extended Storage Project

Table B-3. Fabrication, Inspection, Testing and Delivery Tasks 4 to 7

Contract Requisition 282044: Design/Fabrication of a Cask Storage System (CSS) for the Capsule Extended Storage Project (W-135) Revision 0								
1. No.	2. Type and Numb er of Copie s	3. Technica l Submitta l	4. Vendor Informat ion	5. Description/Documen t Title	6. Submittal Date (Calendar Days)	7. Approver Organizat ions	8. CHPRC Review Time (Work Days)	9. Contract Paragraph or Requirement Reference
F-9	APW, E, GEN	Yes	No	Packaging and shipping plan	45 days prior to first shipment	BTR Engineerin g	8	3.3, 6.6.19
F-10	AP, E, MFC	No	No	Spare parts list	45 days prior to first shipment	BTR Engineerin g	8	3.3, 6.6.18
F-11	APW, E, GEN	Yes	No	First article inspection plan	45 days prior to acceptance of first article	BTR Engineerin g QA	8	3.3, 6.6.6
F-12	AP, E, GEN	No	No	First article inspection documentation	Prior to shipment of first unit	BTR Engineerin g QA	8	3.3, 6.6.6
F-13	AP, E, GEN	No	No	Final data package for each component	2 days prior to shipment	BTR Engineerin g QA	8	7.2.1
F-14	AP, E, GEN	No	Yes	Operation and maintenance manuals/vendor information	With shipment of first unit	BTR Engineerin g	8	3.3
F-15	APW, E, GEN	Yes	No	Factory acceptance test procedures	30 days prior to test	BTR Engineerin g QA	8	3.3, 8.1

Design & Fabrication of a Cask Storage System (CSS) for the Capsule Extended Storage Project

Table B-3. Fabrication, Inspection, Testing and Delivery Tasks 4 to 7

Contract Requisition 282044: Design/Fabrication of a Cask Storage System (CSS) for the Capsule Extended Storage Project (W-135) Revision 0								
1. No.	2. Type and Numb er of Copie s	3. Technica l Submitta l	4. Vendor Informat ion	5. Description/Documen t Title	6. Submittal Date (Calendar Days)	7. Approver Organizat ions	8. CHPRC Review Time (Work Days)	9. Contract Paragraph or Requirement Reference
F-16	AP, E, GEN	No	No	Factory acceptance test report	2 weeks after test	BTR Engineerin g QA	8	3.3, 8.1
F-17	APW, E, GEN	No	No	Storage/warehouse plan for onsite storage of fabricated components	4 weeks prior to need for storage	BTR Engineerin g QA	8	3.3, 8.1

END OF PART I – STATEMENT OF WORK

Design & Fabrication of a Cask Storage System (CSS) for the Capsule Extended Storage Project

PART II – FINANCIAL TERMS

1.0 CONTRACT TYPE AND VALUE

This Contract is set up to accommodate both time and material and firm fixed price contract types for compensation on a task basis. Contract type and authorized funding will be established on a task by task basis as indicated below. The estimated value for this contract is a not to exceed ceiling of \$_____. \$ <<Value of contract>>. Authorized funding will be limited to the cumulative value of the authorized tasks as described in Section 1.1, Limitation of Funds.

Task No.	Task	Contract Type	Task Value
TBD-01	Conceptual Design	Time & Material	NTE
TBD-02	Preliminary Design	Time & Material	NTE
TBD-03	Final Design	Time & Material	NTE
*TBD-04	Fabrication, Inspection, Testing, Delivery of CSS	Firm Fixed Price	
*TBD-05	Fabrication, Inspection, Testing, Delivery of Transportation System	Firm Fixed Price	
*TBD-06	Fabrication, Inspection, Testing, Delivery of Ancillary Equipment	Firm Fixed Price	
TBD-07	Mock-Up/Integrated Testing	Time & Material	NTE
TBD-08	Technical Support Services	Time & Material	NTE

*Prior to receiving authorization to begin work on Tasks 4, 5 and/or 6 for Fabrication, Inspection and Delivery activities, Contractor will be required to submit a variance document that details any variances between design assumptions made during the solicitation phase in pricing these activities and the actual requirements as set forth in the Final Design. This variance document must also identify any cost and/or schedule impact associated with each identified variance for CHPRC review and consideration.

1.1 Limitation of Funds

- Although the parties hereto have negotiated the ceiling price of not-to-exceed <<To Be Determined>> for this Contract, (hereafter referred to as the Contract), they understand that sufficient funds for the full scope of the work are not available. It is anticipated partial funding will be allotted to this contract on a task by task basis until the total estimated price of said Contract is obligated.

Design & Fabrication of a Cask Storage System (CSS) for the Capsule Extended Storage Project

2. The amount presently available for payment and allotted to this Contract, the items covered, and the period of performance the allotted amount will cover is equal to the amount authorized via Task No. TBD-01 (See Table of Values below). The Contractor agrees to perform, or have performed, work on the contract up to the point at which the total amount paid and payable under the Contract, approximates, but does not exceed the total amount actually allotted on the Contract.

Task No.	Contract Type	Task Value
TBD-01	Time & Material	NTE
TBD-02	Time & Material	NTE
TBD-03	Time & Material	NTE
TBD-04	Firm Fixed Price	
TBD-05	Firm Fixed Price	
TBD-06	Firm Fixed Price	
TBD-07	Time & Material	NTE
TBD-08	Time & Material	NTE

3. The Contractor shall notify the Contract Specialist identified in the Contract, in writing whenever it has reason to believe that the costs it expects to incur under this Contract in the next 30 days, when added to all costs previously incurred, will exceed 75 percent of the total amount so far allotted to this Contract. The notice shall state the estimated date when such allotted amount will be reached and estimated amount of additional funds required to continue performance for the period specified in the schedule. If after such notification, additional funds are not obligated by the end of estimated reach date or by an another agreed date, CHPRC shall upon Contractor's written request, terminate this Contract on the performance end date or the date set forth in the request, whichever is later, pursuant to the provisions of the Termination clause of this Contract.
4. Except as provided by other provisions of this Contract, specifically citing and stated to be an exception to this clause:
- a. CHPRC is not obligated to reimburse the Contractor for costs incurred in excess of the total amount allotted to this Contract; and
 - b. The Contractor is not obligated to continue performance under this Contract (including actions under the termination clause) or otherwise incur costs in excess of the allotted amount of this Contract, until CHPRC notifies the

Design & Fabrication of a Cask Storage System (CSS) for the Capsule Extended Storage Project

Contractor in writing that the allotted amount has been increased and specifies the revised total allotted amount.

5. No notice, communication, or representation in any form or by anyone other than that specified in subparagraph 4(b) above, shall affect the allotted amount of this Contract. In the absence of the Contractor's notification (paragraph 3 above), CHPRC is not obligated to reimburse the Contractor for any costs in excess of the total amount allotted to this Contract, whether incurred during the course of performance period, a termination, or result of an audit.
6. When, and to the extent that the amount allotted by CHPRC is increased, any excess costs the Contractor incurred before this modification shall be allowable to the same extent as if incurred afterward, unless this Contract was terminated.
7. Change orders shall not be considered an authorization to exceed the allotted amount specified in the schedule, unless they identify an increased allotted amount.
8. If CHPRC does not allot sufficient funds to allow completion of the work, the Contractor is entitled to a percentage of the fee specified in this Contract equaling the percentage of completion of the work contemplated by this Contract.
9. This limitation of funds clause also pertains to individual task Contracts where incremental funding exists.

2.0 PAYMENT SCHEDULE

2.1 Compensation Schedule

Project Tasks	Authorized Funding
Task TBD-1 – *Conceptual Design	NTE \$<To Be Determined>
Task TBD-2 – *Preliminary Design	NTE \$<To Be Determined>
Task TBD-3 – *Final Design	NTE \$<To Be Determined>
Task 4 – *Fabrication, Inspection, Testing, Delivery of CSS	\$<<To Be Determined>>
Task 5 – *Fabrication, Inspection, Testing, Delivery of Transportation System	\$<<To Be Determined>>
Task 6 – *Fabrication, Inspection, Testing, Delivery of Ancillary Equipment	\$<<To Be Determined>>
Task 7 – *Mock-up/Integrated Testing	NTE \$<To Be Determined>
Task 8 – *Technical Support Services	NTE \$<To Be Determined>
	NTE \$<To Be Determined>

**Design & Fabrication of a Cask Storage System (CSS)
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*Indicates tasks and funding that may be authorized at CHPRC's sole discretion.

2.2 Payment Schedule

In accordance with the provision of this Contract Contractor shall be reimbursed for authorized and approved time and material work in accordance with the following:

LABOR

<u>Name/Classification</u>	<u>Hourly Rate</u>
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DIRECT MATERIALS/ODC'S

The primary technical contributors for this Contract when identified above shall not be reassigned during the period of performance of this Contract without prior approval of the Contract Specialist and CHPRC's Technical Representative (BTR). Other employees of the Contractor, not listed above but listed on the Contract's Labor Compensation Schedule, may be used for nominal work efforts on this Contract, provided that:

1. The Contractor submits prior written notification to the Contract Specialist and the BTR,
2. The Contractor does not exceed the Contract ceiling price, and

Only those employees named on the authorized and approved Labor Compensation Schedule in effect on the date work occurred shall be authorized to perform work on the time and material tasks authorized under this Contract.

2.3 Milestone Payment Schedule – Fixed Priced Line Items

Subject to such other limitations and conditions as are specified in this contract and this clause, contractor may request milestone payments in accordance with the Milestone Payment Schedule Table (Milestone Table).

- 1) A milestone payment request may be submitted only after successful completion of the milestone event specified in the Milestone Table. CHPRC will determine whether the event or performance criterion for which payment is requested has been successfully completed in accordance with the terms of the contract. CHPRC*

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may, at any time, require the Contractor to further substantiate the successful performance of the milestone which is represented as being completed.

- 2) *Contractor's request for milestone-based payment must contain the following:*
- a) an invoice satisfactory to CHPRC that meets contract invoice requirements.*
 - b) a signed and dated request for a milestone payment per the milestone schedule.*
 - c) the contract number,*
 - d) documentation sufficient to verify performance and completion of the milestone event, and*
 - e) certification by a Contractor official authorized to bind the Contractor, as specified below:*

I certify to the best of my knowledge and belief that this request for a milestone payment is true and correct. This request and accompanying invoice has been prepared from the books and records of the Contractor which demonstrate that:

- All payments to subcontractors and suppliers under this contract have been paid, or will be paid, currently, when due in the ordinary course of business;*
- There are no encumbrances against the property acquired or produced for, and allocated or properly chargeable to, the contract which would affect or impair the transfer of title;*
- There has been no materially adverse change in the financial condition of the Contractor;*
- Progress is being made as reported for completion of this contract by the estimated completion date and within the total value of the contract.*

- 3) *Approval by CHPRC of a milestone payment request does not:*
- a) constitute acceptance,*
 - b) excuse the Contractor from performance of all obligations under this contract, and*
 - c) constitute a waiver of any of the rights or remedies of the parties under the contract.*
- 4) *CHPRC may reduce or suspend milestone payments, deduct the amount of milestone payments previously paid from any amounts owing to contractor, or take a combination of these actions after any of the following conditions occurs:*
- a) the Contractor failed to comply with any material requirement of this contract,*

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- b) performance of this contract is endangered by the Contractor's failure to make progress or unsatisfactory financial condition, or*
- c) the Contractor is delinquent in payment of any subcontractor or supplier under this contract in the ordinary course of business, or*
- d) the amount of payments under this contract exceed any limitation in this contract*
- e) Contractor fails to satisfactorily remedy such condition.*
- 5) Title to the property or materials included as part of a milestone, will transfer to CHPRC upon payment of the milestone amount.*
- 6) Contractor shall promptly furnish reports, certificates, financial statements, and other pertinent information requested by the CHPRC to determine that a milestone event has been successfully completed. Contractor shall provide CHPRC reasonable opportunity to examine and verify the Contractor's records and to examine and verify the Contractor's performance. CHPRC may decline one or more milestone payment requests any time the Contractor's records or controls are determined by CHPRC to be inadequate for support of the request.*
- 7) CHPRC's rights and remedies under this clause are not exclusive, but rather are in addition to any other rights and remedies provided by law or this contract.*

Milestone Payment Schedule <<To Be Determined>>

<i>Milestone</i>	<i>Milestone Value \$</i>	<i>% Contract Completion</i>	<i>Assumptions</i>

3.0 PRICING INSTRUCTIONS FOR CHANGE ORDERS/MODIFICATIONS

CHPRC reserves the right to request a complete pricing breakdown, including certified or uncertified cost or pricing data as applicable for any change orders or modifications that have an impact to the established contract pricing.

4.0 TAXES

Contractor shall refer to the TAXES section of the General Provisions.

**Design & Fabrication of a Cask Storage System (CSS)
for the Capsule Extended Storage Project****5.0 PAYMENT TERMS**

Payment terms are net 30 days from receipt of a properly completed invoice, unless reduced terms of payment are accepted by CHRPC.

5.1 Estimated Cost of Contract

The estimated value for this Contract is as stated above. The Contractor shall not exceed this amount without specific written authorization from CHRPC. The Contractor shall notify the cognizant Contract Specialist in writing when the Contractor reaches 75% of the current estimated value.

5.2 Estimated Billing

It is mandatory for continued acceptable performance that the Contractor provide monthly, to CHRPC Accounts Payable, the best estimate of the total billable cost (invoiced plus invoiceable) from inception of the contract through the current fiscal month closing (closing dates specified on the form). This information must be provided in writing by email (preferred), fax, or mail by the 15th of each month. This data must be provided until all payments are received and the contract is complete.

Mailing Address: Email: CHPRCA@rl.gov Fax: (509) 376-6294

CH2M HILL Plateau Remediation Company
2420 Stevens Drive
PO Box 1600
Richland, WA 99352
Attn: Accruals MSIN H7-30

The Monthly Contract-to-Date Cost Estimate Form can be obtained at the following Internet Address: <http://chprc.hanford.gov/page.cfm/SubmittalsFormsDocs> or directly from the Contract Specialist.

6.0 DEFINITIONS

There are no special definitions applicable to this contract.

7.0 ASSUMPTIONS

There are no special assumptions applicable to this contract.

8.0 INVOICING INSTRUCTIONS**8.1 Contractor Invoices**

Invoices submitted to CHRPC shall be submitted as follows. Failure to submit a proper and accurate invoice may result in rejection or delay of the invoice. Address invoicing requirement questions to the Contract Specialist.

General Requirements

1. Submittal of an invoice constitutes Contractor's certification that materials, work and/or services have been provided, and invoiced amounts are in accordance with the contract.

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2. Each task authorized under this contract must be invoiced separately and in a timely manner with respect to the invoiced products or services.
3. The invoice must clearly & legibly identify the
 - a. Contractor's Name
 - b. Unique Invoice Number
 - c. Contract Task Number
 - d. Itemized description of the supplies or service provided
4. Remittance will only be made to the remittance address on file for the contractor. Invoices from third parties or with different remittance instructions or addresses will not be processed.
5. An "Authorization for Electronic Funds Transfer (EFT) of Invoice Payments" must be on file with CHPRC before EFT payments can be made.
<http://www.hanford.gov/pmm/files.cfm/eft.pdf>
6. Invoices should include the name and telephone number of a company representative available to respond to questions about the invoice.

Contracts for Services:

7. Unless otherwise authorized in the contract, service contracts may not be invoiced more than once per calendar month.
8. The total amount due for the billing period must be clearly identified on all invoices (this amount should be set apart from any cumulative amounts or subtotals).
9. Invoiced amounts, rates, other direct charges or travel must be specifically defined in the contract to be allowable for reimbursement.
10. When applicable for this type of contract, indicate the name(s) of the worker(s) labor rate, billable work hours, and period of performance on each invoice.
11. Travel expenses (if authorized) must be itemized and supported with receipts in accordance with the requirements set forth under clause, "Reimbursement of Travel Expenses" or as otherwise stated within the Contract.

Purchase Orders:

12. Invoices must indicate the quantity, unit description and unit price for each item listed.
13. Invoices that include a total freight charge that is equal to or greater than \$100.00 must include a copy of the freight bill. If the carrier is UPS, the Contractor must provide the weight, quantity and Shipping Point.

Submittal

14. Invoices and supporting documentation may be submitted electronically in a format acceptable to CHPRC (preferred).

**Design & Fabrication of a Cask Storage System (CSS)
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15. Submit invoices electronically via e-mail to both CHPRC Accounts Payable (CHPRC AP) at the following e-mail address: chprcap@rl.gov (chprcap@rl.gov) and (in the same email) to the Contract Specialist.

- a. The contractor's name, invoice number, and the contract and release numbers must be shown in the subject line of the e-mail message used to submit an electronic invoice. The suggested format for the subject line is: Contractor Name, Invoice XXXXX, Contract XXXXX-X.

16. Submit hard copy invoices including supporting documentation to CHPRC's Accounts Payable organization at the address below.

CH2M HILL Plateau Remediation Company
Accounts Payable - Mail Stop: H7-32
P.O. Box 1600
Richland, WA 99352

9.0 CLOSEOUT AND FINAL PAYMENT

9.1 Closeout Certification

Contractor shall properly execute and mail to CHPRC a final release, in a format acceptable to CHPRC, within five working days from the last date services are provided hereunder and/or the date of the last shipment made hereunder. Final payment will not be made until a final release is properly executed and received by CHPRC. (form [available on this web page](#) or directly from the Contract Specialist)

10.0 SPECIAL INSTRUCTIONS

10.1 Backcharges

CHPRC reserves the right to backcharge the contractor for costs incurred by CHPRC which are caused by the contractor or contractor's subcontractors in accordance with the contract General Provisions. In addition to the circumstances described in the General Provisions, the backcharge may also result from

- a. Services performed by CHPRC, at Contractor's request, which are within Contractor's scope of work under the Contract.
- b. Costs sustained by CHPRC as a result of Contractor's non-compliance with the provisions of this Contract or Contractor's act of omission or negligence.
- c. Costs incurred by CHPRC to fix all defects, deficiencies or errors that may appear in the Work during the warranty period.
- d. Costs associated with CHPRC support costs when work is interrupted by a contractor-caused delay or equipment failure.

At CHPRC's sole discretion and if circumstance allow, contractor may be offered the opportunity to propose a fix or take mitigating actions to reduce the impact and total backcharge. In the event that contractor fails to take satisfactory action, contractor's

**Design & Fabrication of a Cask Storage System (CSS)
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option to mitigate will be withdrawn and CHPRC will take appropriate action to cure the problem and backcharge contractor.

10.2 Availability of Funds

Funds are not presently available for this Contract. CHPRC's obligation under this Contract is contingent upon the availability of funds from which payment for contract purposes can be made. No legal liability on the part of CHPRC for any payment may arise until funds are made available to CHPRC for this Contract and until CHPRC receives notice of such availability, to be confirmed in writing by CHPRC.

10.3 Reimbursement of Travel Expenses

1. Travel Authorization: Only when authorized in advance by CHPRC as part of the Contract, will Contractor personnel be reimbursed for travel expenses incurred in performance of this Contract. Expense reimbursement is limited to costs incurred for lodging plus meals and incidental expenses (M&IE) considered reasonable, allowable, and allocable, and that do not exceed the maximum per diem rates in effect at the time of travel as set forth in Federal Travel Regulations (FTR). Contractor is expected to take reasonable steps to minimize the amount of travel expenses. Links to the FTRs and current per diem rates can be found on the GSA web site (www.gsa.gov)
2. Eligibility: Expense reimbursements will only be allowed for contractor personnel who travel from their permanent residence, if beyond a 100 mile radius of the temporary work location, for temporary assignment to the project site.
3. Invoicing: Expense reimbursement requests must be invoiced in accordance with contract invoicing requirements in a timely manner, and must identify the name of the traveler, destination, purpose and date of the travel as well as document any required CHPRC pre-approval. Submittal of an invoice to CHPRC that includes travel expenses signifies Contractor's certification to all requirements identified herein.
4. Receipts: Unless agreed in advance by CHPRC, invoices must include original or legible copies of receipts to support the actual lodging and travel expenses incurred. Receipts for M&IE expenses are not typically required.
5. Cancellation: When travel, arranged in accordance with these requirements, is cancelled in writing by CHPRC, airline cancellation or rebooking charges may be invoiced and reimbursed provided that supporting documentation showing authorized travel and subsequent cancellation are provided.
6. Short-Term Assignments: thirty (30) Days or Less: Lodging and M&IE will be paid in accordance with the rates established by the Federal Travel Regulations unless otherwise specified in this Contract.
7. Rates: Expenses will be reimbursed using the following guidelines:
 - a. Transportation Other than Airline: Reimbursement of transportation costs will be at the current FTR per mile rate, for travel by personal automobile, or

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actual fares for other public conveyance, reasonably incurred by contractor's personnel in traveling by the shortest and most direct route from his/her home office to (Hanford Site) Richland, Washington, or to other such locations and return, at the request of CHPRC. When travel is by automobile the most direct route must be used. Local mileage costs while at the Hanford Site will not be reimbursed, unless specifically authorized in advance by CHPRC.

- b. Transportation by Airline: Every reasonable effort must be made to plan required travel to obtain the lowest advance-purchase fares available. Actual receipts must accompany invoices for all airfare costs.
 - c. Car Rental: Travelers must use the least expensive compact car available. Should a compact or intermediate size vehicle not be available, use of a more expensive vehicle must be approved in advance by the CHPRC Contract Specialist and must be limited only to the time necessary to obtain a lower cost alternative and include a certification by the employee of the effort made to obtain the compact vehicle. Actual receipts must document all car rental and fuel costs. NOTE: A Pre-Paid refueling option and optional rental car insurance will not be reimbursed.
 - d. Personally-Owned Vehicle: Instead of using a rental car, a personally-owned vehicle may be used if determined to be more cost effective. However, arrangements must be pre-approved by the CHPRC Contract Specialist. CHPRC assumes no liability for accidents when personally owned or rental vehicles are used. Contractor retains all risks and liabilities associated with using personally-owned or rental vehicle.
 - e. Lodging: Lodging will be reimbursed at the current FTR rate or at the actual cost if less than the allowable FTR rate. Actual receipts must document all lodging costs being invoiced under this contract. If contractor employee moves from hotel lodging into residential accommodations earlier than 30 days, the lodging will be reduced to 55% of the FTR rate day effective date of establishing residential accommodations.
 - f. Meals and Incidental Expenses (M&IE): M&IE will be reimbursed at a flat rate per day; not to exceed the limits specified for the geographical location in the FTR. The daily living expense (M&IE) will be prorated per the FTR during the first and last day of travel, inclusive of weekend trips home. Weekend stay-over(s) are paid when continued work is required during the following week.
8. Long-Term Temporary Work Assignments – (More than thirty (30) days, but less than three hundred sixty-five (365) Days). M&IE and lodging reimbursement limits will be reduced in accordance with Department of Energy (DOE) policy for extended travel assignments exceeding 30 days (ref. DOE-AL-2013-01).
- a. Lodging: For the first 60 days and last 30 days of a long-term assignment, CHPRC will reimburse costs associated with lodging at the lesser of actual

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cost or 100% of the FTR authorized rate at the assignment location. The intervening days will be reimbursed at the lesser of actual cost or 55% of the FTR rate.

- b. M&IE: For the first 30 days and last 30 days of the assignment, CHPRC will reimburse costs associated with M&IE at the lesser of actual cost or 100% of the FTR M&IE rate for the assignment location. The intervening days will be reimbursed at the lesser of actual cost or 55% of the FTR rate. The M&IE will be prorated per the FTR during the first and last day of travel, inclusive of weekend trips home.
- c. Travel Home: When on a long-term work assignment (more than 30 consecutive days), one trip home, to the primary residence, after each four (4) consecutive weeks of assignment (on travel status) to the Contract will be reimbursed when approved in advance by CHPRC as follows:
 - i. Travel home must be booked via the most economical method and direct route in accordance with FTR guidance. If the project work assignment or an urgent situation prevents the Contractor employee from obtaining a minimum of (14) day airfare rates; approval must be obtained from CHPRC prior to booking the airfare. If a personal vehicle is used to return to the primary residence, mileage will be paid at the current FTR rates up to a total not to exceed the fourteen (14) day advance airfare value.
 - ii. While traveling and at home, lodging and M&IE expenses are not reimbursable.
 - iii. The trips home are neither “bankable,” transferable nor cumulative.
- 9. Permanent Work Assignments: Unless pre-approved by CHPRC, work assignments of more than three hundred sixty-five (365) consecutive days are considered permanent. All incurred travel and living expenses, after three hundred sixty-five (365) consecutive days, are not reimbursable without written pre-approval from CHPRC. The consecutive-day count for Contractor personnel who change employment to another contractor will not restart, but continue from the original contract assignment date.

10.4 Work Hours

Contractor personnel providing professional and staff augmentation support under this contract are expected to work the hours necessary to accomplish the task, which may require them to work beyond the base work hours. This should be taken into consideration when identifying job position and salary levels.

10.5 Contractor Cost and Pricing Data

- 1. Before awarding a contract or issuing a modification to an existing contract expected to exceed \$700,000, the Contractor must provide cost or pricing data except where the exceptions in paragraph 2, below, apply. If an exception does not apply, cost or

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pricing data is required before accomplishing any of the following actions expected to exceed the current threshold or, in the case of an existing contract, the threshold specified in the contract:

- a. The award of any negotiated contract (except for undefinitized actions such as letter contract).
 - b. The modification of any sealed bid or negotiated contract (whether or not cost or pricing data were initially required). Price adjustment amounts must consider both increases and decreases (e.g., a \$200,000 modification resulting from a reduction of \$500,000 and an increase of \$300,000 is a pricing adjustment exceeding \$700,000). This requirement does not apply when unrelated and separately priced changes for which cost or pricing data would not otherwise be required are included for administrative convenience in the same modification.
2. Exception to cost or pricing data requirements. The submission of cost or pricing data shall not be required:
 - a. When the prices agreed upon are based on adequate price competition.
 - b. When the prices agreed upon are based on prices set by law or regulation.
 - c. Commercial items where catalog or market prices are established. Also, items included on an active Federal Supply Service Multiple Award Schedule contract.
 - d. When modifying a subcontract for commercial items.
3. The Contractor shall prepare and submit cost or pricing data and supporting attachments in accordance with Table 15.2 of Federal Acquisition Regulation (FAR) 15.408 or in a manner substantially similar.
4. As soon as practicable after agreement on price, but before contract award, the Contractor shall submit a Certificate of Current Cost or Pricing Data, as prescribed by FAR 15.406-2.
5. If the Contractor intends to issue a subcontract in performance of this requirement and it is expected to exceed \$700,000, the lower-tier contractor is also subject to the above requirements.

END OF PART II – FINANCIAL TERMS

**Design & Fabrication of a Cask Storage System (CSS)
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Contractor, by signing this Contract, delivering the supplies, or performing the requirements indicated herein, agrees to comply with all the Contract provisions, specifications and other documents that this Contract incorporates by reference or attachment. CHPRC hereby objects to any provisions inserted into this Contract, amendment, or modification to the Contract that are different from or in addition to those set forth by CHPRC in the Contract, amendment or modification to the Contract.

1.2 Attachments Incorporated

The terms, forms, documents and attachments listed herein are hereby incorporated into and made a part of this contract. Contractor is responsible for downloading or obtaining a copy from the Contract Specialist and complying with the applicable documents.

Where available, hyperlinks are provided for downloading the referenced document.

1.3 Subcontractor Flow-Downs

Contractor may **not** subcontract any significant portion of this contract without first obtaining concurrence of CHPRC to the proposed subcontract scope and subcontractor(s).

Contractor is responsible to incorporate and flow down all appropriate provisions and requirements of this contract to all lower-tier contractors and subcontractors.

Contractor shall furnish CHPRC a list of all proposed lower-tier subcontractors who will be performing work on the Hanford site and those proposed subcontractors who will be performing a significant portion of the off-site work. The list must be furnished prior to award and updated with changes during contract performance. Use the Subcontracting form and instructions located on this web page:

<http://chprc.hanford.gov/page.cfm/SubmittalsFormsDocs>

CHPRC reserves the right to:

- reject any proposed subcontract or subcontractor as incomplete or unsuitable
- require submittal of the proposed subcontract before contract award or prior to performance of any work on site
- require the replacement, at contractor's expense, of any subcontractor who fails to adhere to all of the applicable provisions and requirements of this contract.

END OF PART III – GENERAL TERMS and ATTACHMENTS

**Design & Fabrication of a Cask Storage System (CSS)
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CHPRC's Mailing Address:

Attn: Tracey Burch
CH2M HILL Plateau Remediation Company
PO Box 1600, Mail Stop: H8-42
Richland, WA 99352

CHPRC's Street Address:

Attn: Tracey Burch
CH2M HILL Plateau Remediation Company
2420 Stevens Center Place, Room 380
Richland, WA 99352

1.2 Abnormal or Unusual Situations

In the event that there is an abnormal or unusual situation associated with this contract work scope, the Contractor is to immediately contact the designated Contract Specialist (CS) or designated CHPRC's Technical Representative (BTR). If the Contractor is unable to contact either the CS or the BTR, the Contractor is to contact the CHPRC Occurrence Notification Center at (509) 376-2900, which is available 24 hours a day, seven days a week, and provide them with: Contract Number, Contract Specialist's name, BTR's name and a short summary of the abnormal or unusual situation. If after making contact with CHPRC, the Contractor is advised to suspend activities, the Contractor is not to proceed until such direction to proceed has been expressly issued by the Contract Specialist. If there is an emergency situation, the Contractor is to make the appropriate immediate emergency call to 911 or 373-0911 for cell phones and then make the notifications to CHPRC as set forth herein.

1.3 Term of Contract

The CHPRC Prime Contract DE-AC06-08RL14788 with the U.S. Department of Energy ends on September 30, 2018.

The term of this Contract for the Design & Fabrication of a Cask Storage System (CSS) for the Capsule Extended Storage Project shall commence on the date of award and shall end on September 30, 2018 unless extended by the parties or unless terminated by other provisions of this Contract. This term of the contract through September 30, 2018 will cover the design work scope, tasks 1 through 3.

Authorization for work on the remaining tasks 4 through 8 will be covered by the terms of the contract and the General Provisions, Section 14.2, Assignment.

**Design & Fabrication of a Cask Storage System (CSS)
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Contractor shall enclose a packing list with each shipment referencing:

1. Name of Contractor
2. Contract number and item number
3. Date of Contract
4. Itemized list of supplies or services furnished
5. Quantity of each item
6. Date of delivery or shipment
7. Stock number (if applicable)

1.5 Package Identification

All envelopes, boxes or packages shipped to CHPRC in performance of this contract must be clearly marked with the contract number

1.6 Authorized Personnel

Only the following named Contract individuals are authorized to make changes to this document:

Contract Specialist, Tracey A Burch
Service Contract Manager, Joan D Howard
Procurement Manager, Patrick M Marmo

1.7 Contractor Submittals – Contract

The Contractor submittals identified herein on the Submittal Register shall be submitted by the Contractor using the [Contractor Document Submittal Form \(CDSF\)](#). Instructions for completion of the CDSF are included with the form. The quantity, frequency and type of submittal shall agree with the requirements set forth on the Submittal Register. A Submittal Number, entered on the CDSF by the Contractor in accordance with the submittal register, shall be used to identify each submittal. Engineering controlled Vendor Information (VI) content shall be identified on the CDSF when indicated on the Submittal Register. CDSF forms may be copied for submittals with different submittal dates. When any submission is returned to the Contractor with a request for resubmission (i.e., marked as: “B” and “Resubmit – Yes”; or “C” Revise and Resubmit) the Contractor shall resubmit all corrected documents within the time specified on the resubmission notice or if no time is specified therein within ten (10) working days from the disposition date. New submittals shall require the Contractor to contact CHPRC if additional Submittal Numbers are required.

Changes to a Contractor’s deliverables, that have not been accepted by CHPRC as complete shall be re-submitted using the CDSF form and in accordance with a Contractor’s CHPRC-approved Quality Assurance and/or Engineering Program.

1.8 Electronic Mail Capability

The Contractor shall provide and maintain Internet and electronic mail capability for the duration of the Contract. The Contractor’s email account shall be able to send and

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receive attached documents of up to 5 megabyte in size. Correspondence and Administrative messages concerning this contract will be conducted via email in current versions of Microsoft Office applications, ASCII text, RTF, PDF, ZIP and other commonly used file formats. In addition, information, data and forms may be posted on CHPRC's Internet web site for downloading by the Contractor.

1.9 Requests for Clarification or Information

Where necessary, the Contractor may elect to submit formal requests for Clarification or Information as necessary to obtain technical clarifications using the Request for Clarification or Information (RCI) Form. RCI Instructions. The inquiry portion of the RCI Form shall be completed by the Contractor, including a determination of priority and an identification of schedule delay with the issue, if applicable. RCI Form numbering shall be left blank and assigned by CHPRC upon receipt. CHPRC will complete an evaluation, and provide a disposition and determine additional actions required, when appropriate. The purpose of the form is to facilitate formal communications when necessary.

1.10 Work Schedules and Holiday

NOTICE: Daily work schedules and facility operations are NOT consistent on the Hanford Site. CHPRC and some other organizations are working a 4x10 schedule and others observe alternate Friday closures.

Accordingly, Contractor is responsible to understand and plan to support the work schedule required for this specific contract and/or work location. BEFORE scheduling work on site and/or deliveries, the Contractor shall make specific schedule arrangements with CHPRC, BTR, Facility Manager, Delivery Warehouse Manager, Building Manager, etc.

CHPRC will not be liable for the cost of any delays, demurrage, layover, extra travel days, etc. which result from Contractor's failure to plan for and obtain specific schedule concurrence in advance.

1.11 Key Personnel

Contractor agrees those individuals determined to be key individuals will not be reassigned without the written agreement of CHPRC. Whenever, for any reason, one or more of these individuals are unavailable for assignment for work under this Contract the Contractor, with the approval of CHPRC, shall replace such individual with an individual substantially equal in abilities or qualifications.

The following named individuals have been determined to be key personnel assigned to the performance of this Contract. <<*Key personnel*>>

1.12 Service Contract Act of 1965

This Contract is subject to the McNamara-O'Hara Service Contract Act of 1965 (SCA) as specified in FAR 22.10. In accordance with the SCA, the contractor shall pay service

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employees, employed in the performance of this contract, no less than the minimum wage and furnish fringe benefits specified by the SCA or applicable Wage Determination.

Compliance with direct labor rates, fringe benefits and requirements of the SCA are the responsibility of the contractor and are included elements of the contract pricing. During the term of this contract, CHPRC may unilaterally modify this contract to incorporate revised Wage Determinations. If a Wage Determination (or revision) is incorporated after award and the contractor has to adjust rates payable to employees covered by the SCA in order to comply with the revised minimum wages and fringe benefits, the contractor may request an equitable adjustment in accordance with the SCA and other provisions of this contract.

Blanket Wage Determination (BWD) 05-2569 is applicable to work performed on the Hanford Site and adjacent area by service occupations identified in the BWD. Service occupations that will be used in performance of this contract at another location or that are not listed in the BWD must be specifically identified herein along with an applicable wage determination.

A copy of the most recent Hanford Area Service Contract Act Blanket Wage Determination is posted on the acquisition web site at
<http://chprc.hanford.gov/page.cfm/SubmittalsFormsDocs>

A Directory of Occupations and more information about the Service Contract Act can be found on the Department of Labor web site at
<http://www.dol.gov/whd/govcontracts/sca.htm>

1.13 Proprietary Data Submittals

If Contractor submits any data as part of their Contract, which is considered by the Contractor to be "Proprietary Data", the document transmitting the data or which contains the data, shall be boldly marked indicating that the data Included is considered to be proprietary.

1.14 Contractor – CHPRC Interface

CHPRC and the Contractor will interface only through CHPRC's Contract Specialist for clarifications and questions.

1.15 Other Interfaces

Additional CHPRC contacts will be identified at the kickoff meeting.

1.16 Designation of Technical Representative

The designated Buyer's Technical Representative (BTR) for this contract is:

<<Name/phone/mail stop>>

The BTR is responsible for monitoring and providing technical guidance for this Contract and should be contacted regarding questions or problems of a technical nature. The BTR is also responsible for appropriate oversight of Contractor's personnel while on site and

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the interface between contractor and other CHPRC organizations supporting contract performance.

Authority of the BTR and supporting organizations is limited to providing technical direction within the scope and provisions of this contract. The BTR may not direct work or authorize any change outside of the written contract and contract provisions.

The BTR does not possess any explicit, apparent or implied authority to modify the contract. When in the opinion of the Contractor, the BTR requests or directs efforts outside the existing scope of the Contract; Contractor shall promptly notify the Contract Specialist in writing. No action outside the scope of the contract should be taken until the Contract Specialist makes a determination and/or modifies the contract.

In no event, will an understanding or agreement, modification, change order, or any deviation from the terms of this Contract be effective or binding upon CHPRC unless formalized by proper Contract documents executed by the Contract Specialist.

1.17 Independent Contractor

1. Contractor shall perform all work required by this Contract as an independent contractor and not as an agent or employee of CHPRC or the Government.
2. Acceptance of this contract constitutes contractor's certification that any required business licenses, permits, tax identification requirements, principle place of business identification, etc. have been addressed and are the sole responsibility of contractor.
3. Contractor shall pay all wages, salaries and other amounts due its employees in connection with this Contract. Contractor is responsible for all reports, obligations and payments regarding such employees relating to social security, state and federal taxes, license fees, withholding, unemployment compensation, workers compensation and similar matters. Upon CHPRC's written request, Contractor shall promptly provide documentation substantiating its compliance with the requirements of this paragraph.
4. Contractor shall maintain complete control over its Employees, Agents, Representatives and Subcontractors at any tier and shall be responsible for the proper performance of all work required by this Contract, including any such work which may be done by Suppliers or Subcontractors at any tier.
5. Contractor does not have, nor shall it represent that it has, any authority to bind CHPRC or the Government.
6. Unless specifically identified in the contract, contractor shall supply and use its own equipment, supplies and means of performance.

1.18 Contract Change Request

The Contractor shall submit formal requests for changes to the scope, schedule or cost of this contract using the [Change Form. Instructions](#). The appropriate portions of the Change Form shall be completed by the Contractor. A red-line markup of the Statement of Work or Specification showing where the proposed changes fit within the scope shall be

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attached, if applicable. Change Form numbering shall be left blank and assigned by CHPRC upon receipt. CHPRC will complete an evaluation, provide a disposition and determine additional actions required, as appropriate. The purpose of the form is to facilitate formal communications.

2.0 CONTRACT PROVISIONS

The provisions, forms, documents and attachments listed below are hereby incorporated into and made a part of this contract. Unless specifically replaced or revised in the body of this contract the clauses and referenced laws, rules and regulations in the General and Special Provisions applicable for this type of contract shall have the same force and effect as if written into the body of the contract.

Contractor is responsible for downloading, reading and complying with the applicable provision revision identified below. In the event that the link to a specific provision is broken, provisions are posted for downloading at the following hyperlink. A copy is also available from CHPRC on request.

<http://chprc.hanford.gov/page.cfm/ContractProvisions>

2.1 General Provisions

Revision 7 dated August 20, 2015

2.2 Special Provisions, SP-3 - Application of Federal Cost Accounting Standards

Revision 2 dated February 26, 2014

2.3 Special Provisions, SP-5 - On-Site Services

Revision 11 dated January 21, 2016

2.4 Special Provisions, SP-9 - Organizational Conflict of Interest

Revision 1, dated August 5, 2013

2.5 Special Provisions, SP-11 - Subcontracting Plan

Revision 4 dated August 19, 2013

The subcontracting plan submitted by the contractor and accepted by CHPRC is hereby incorporated in to this contract. Contractor is obligated to comply in good faith with the commitments made in the proposed plan unless an alternate plan is proposed and accepted by modification to this contract. CHPRC is under no obligation to accept an alternate proposal.

2.6 Special Provisions, SP-13 - General Transportation Instructions

Revision 1 dated April 6, 2011

2.7 Special Provisions, SP-16 - Contractor Representations and Certifications

Revision 5 dated July 18, 2013

Representations and Certifications made by the contractor as part of the proposal and award process are hereby incorporated by reference into, this Contract unless specifically

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excluded and agreed by CHPRC in the Contract. Contractor agrees to update and resubmit a revised SP-16 if any change occurs that would nullify, change or otherwise affect said representations and certifications.

2.8 Special Provisions, SP-19 - Time and Materials (T&M) and Labor Hour (LH)

Contracts - Revision 0 dated December 23, 2008

END OF PART IV – SPECIAL TERMS

END OF CONTRACT